SCOTT NEARING has been a student, teacher, observer, lecturer, and writer on economics since 1898. A Pennsylvanian by birth, he was educated at the University of Pennsylvania and Temple University, and taught at the former for nearly ten years, until 1915 when he was forced to resign in a famous academic-freedom case. He had other experiences of academic intolerance, and also had the distinction of being one of the first persons expelled from the U. S. Communist party, this occurring in 1929 over differences on the theory of imperialism. Finding most doors closed to him, he determined to go it alone, and for more than thirty years has devoted himself to his writing and lecturing and to farming. He and his wife have recently sold the sugar bush in Vermont on which they supported themselves for fifteen years, and now live in Maine. He is the author of some forty books on economic, political, and social topics, and, with his wife, of *The Maple Sugar Book.*

ECONOMICS FOR THE POWER AGE

Scott Nearing

JOHN DAY

A STATEMENT OF FIRST PRINCIPLES

ECONOMICS FOR THE POWER AGE

by
Scott Nearing

Rudy Schwarz - greetings from.

Scott Nearing.
Nov. 9. 1952
Seattle, Wash.
Otherwise
Albuquerque, N. Mex.

SCOTT NEARING

Economics for the Power Age

A STATEMENT OF FIRST PRINCIPLES

THE JOHN DAY COMPANY
NEW YORK, 1952

First Principles of Economics

PRINCIPLE 1. Individual and social life are conditioned by subsistence 33
PRINCIPLE 2. All subsistence originates with nature 45
PRINCIPLE 3. Western man utilizes nature by means of science and technology 57
PRINCIPLE 4. Subsistence is the result of productive effort and, increasingly, of group effort 73
PRINCIPLE 5. Subsistence should be apportioned according to need 89
PRINCIPLE 6. The less overhead, the better 102
PRINCIPLE 7. The economy should be owned by those who use it 119
PRINCIPLE 8. The economy should furnish a stable, secure subsistence 138
PRINCIPLE 9. The economy must assure justice and provide incentive that will lead the individual and the social group to assume and carry a full share of responsibility for the production and apportionment of livelihood 152
PRINCIPLE 10. The economy should afford opportunity for the growth and development of successive human generations 171

Preface

Economies operate by various means—by hands and hand tools; by the efforts of domestic animals; and by the energy of water, air, fire, electromagnetism; and atomic fission working through machines. Present-day machine tools have become so complex and automatic, and so dependent upon mechanical power, that we describe the period in which they have been developed and used as the power age. Since power-age economies have overshadowed and replaced many of those based on hand tools and animal energy, economics must now be approached from the standpoint of power-age experiences and possibilities.

This book is a study of power-age economics. I have wanted to write it ever since I read John Ruskin's *Unto This Last* half a century ago.

Unto This Last was written about 1860. It consists of four essays, moralistic rather than scientific in tone. These essays take John Stuart Mill to task for his inconsistency and lack of moral perception; examine the nature of value, wealth, and justness, with the consequent obligations imposed upon businessmen; and conclude that the economic function is, in the main, a public rather than a private one.

Ruskin was an artist and essayist, not an economist. I have been a student of economics since 1898. Of the many books in this field which I have read, Ruskin's comes nearer than any other to presenting what I regard as the essentials of the subject. It might be worth remembering, in this connection, that the father of modern classical economics, Adam Smith, was a teacher of

INTRODUCTION

1. Getting a Living

Economics deals with the problems of livelihood

Human beings must eat in order to survive. They also require protection against heat, cold, sun, wind, rain, snow. Men have learned to depend upon various utensils, tools, machines, techniques, and devices for efficiency, convenience, and comfort. Food, shelter, clothing, gadgets,—the necessaries, decencies, and luxuries—are grouped under the word livelihood.

Animals, birds, insects, and myriad creatures who live in water also survive through nutrition, protection, organization. Like human beings, they have worked out livelihood patterns.

Men have many ways of making a living. In its simplest form, human livelihood consists of the food which nature provides—fruit, nuts, roots, succulent shoots. The food gatherers who live thus, upon nature's bounty, have primitive shelters, wear little clothing, and use few implements. They roam the countryside like other animals, feeding themselves from nature's storehouse. At more advanced stages of social development men hunt, domesticate animals, use stone, clay, fibers, metals, build huts, boats, irrigation dams and ditches, defensive walls, cities, ports, and highways, and thus move by stages toward the occupations, crafts, arts, and sciences found in a power-age society. A few primitive food gatherers still live on nature's bounty. Hunters, herdsmen, farmers, woodcutters, craftsmen, boatbuilders, and metal workers carry on their hand economies over large sections of the planet. Many of them may be found close to centers of machine industry and high-powered commerce and finance.

Early human economies and the economies of present-day hunters, herdsmen, and village-dwelling land workers do not concern us in this book. Here we are dealing with the livelihood problems of communities which have come under the influence of science and technology and have been industrialized at the power-age level.

2. Industrialization and the Industrializers

Industrialization has remade the older forms of society by substituting the machine for the tool; by replacing animal power with mechanical power; by moving populations from villages to cities; by converting production for use into production for sale in the market. Communities like old England and New England, which are largely industrialized, have not only replaced craft tools by factory machines, but they have also changed their eating habits, dwelling habits, recreation habits, and along with them, many of their ways of feeling, thinking, and acting.

Industrialization has increased the number and variety of goods and services at the disposal of individuals, as well as the total volume of wealth and income in the community. This result has been accomplished by developments in shipbuilding, navigation, agriculture, mining, manufacturing; in the use of steam, internal combustion, and electricity; and in the application of the natural and social sciences to the economic processes. Scientific and technical developments have also concentrated population, technology, wealth, and power; knit the social order more closely together; brought the individual into more constant contact with a larger number of his fellows and with wider geographical areas. Industrialization has thrust aside an old social pattern and set up a new one in its place.

During the two centuries which have passed since the onset of the industrial revolution in Western Europe, there has been much discussion for and against the advancing machine-power age. Supporters of machine economy have called attention to the increase in the available quantity of capital tools and consumer goods and services. Opponets have emphasized the decrease in quality which has accompanied the increase in quantity of things,

and the advent of a mass man who is a machine tender rather than a tool user, and is regimented and exploited in his economic relations by the power of those who own and manage the economic apparatus.

During the course of this discussion over the merits of an industrialized economy, the economy itself was being concentrated in a few regions—at first in West Europe and North America. At the same time its controls were being extended and its techniques were being established in Asia, South America, and Africa.

The replacement of an economy based chiefly upon soil tillage and animal husbandry by an economy based chiefly upon trade, commerce, industry, mechanical power, and finance necessarily enabled the expanding group of businessmen and their professional and technical aides to take over from landowners, soldiers, and priests the chief roles in formulating and directing public policy and in controlling the channels through which the public obtained its information. In the industrialized nations, during the first decade of the twentieth century, businessmen were masters of the economy, the state, and the various agencies, including the school and the press, which were chiefly responsible for shaping public opinion.

Wealth and income, derived from industrialized, profit-yielding business activities, had given a small minority mastery over the life of the entire community. To be sure, in the preindustrial age, an even smaller minority of landowners had managed community affairs, but while the landed minority, at least in theory, recognized a measure of social responsibility, the business minority was out to add to its own wealth, prestige, and power by "steadfast cupidity."

Thus, in the course of three or four generations the business interests, in one industrialized country after another, put the welfare of a profit-seeking minority first, and the welfare of the entire community second. There is an old saying that where a part usurps the functions of the whole, both part and whole suffer. Particularly is this true where the part is seeking to increase its own prestige and power.

3. Five Aspects of Present-Day Economy

The outcome of the industrial revolution is a world knit together by means of transport and communication which have facilitated the movement of people, goods, and ideas from place to place. In this integrated world various peoples make their living by widely differing methods. For our purposes, we may note five livelihood groups.

First, preindustrial economies, in which people gain their livelihood in the main by agriculture, through the use of hand tools and implements, supplemented by animal power. The presence, in the neighborhood, of a railroad, a telephone line, or a bus route does not necessarily alter the preindustrial status of the hand-tool farmer and animal husbandmen. So long as the bulk of family income is directly derived from the labor of the household, the group is living under a use economy rather than a market economy. At the moment perhaps two thirds of the members of the human race depend upon a predominantly use economy for their livelihood. The four other groups into which we are dividing present-day economy have had varying degrees of experience with industrialization.

Second, business-for-profit economies in which businessmen are the chief policy makers, but in which there is at least a theoretical separation between business, government, and social control, and in which business leaders are chiefly concerned with winning prestige for themselves, their families and dependents by "making money." Such economies exist during the early stages of industrialization, while business is still in small units and is largely competitive. They are found today in some of the areas recently liberated from colonial status.

Third, business-for-power economics in which the separations between business, government, and social control have become merely formal or have disappeared; in which the central nucleus of business leaders has coalesced with the central group of political, military, and public-opinion leaders to form a self-perpetuating oligarchy of seekers after wealth and power, and in which this unified oligarchy, while preserving the fiction of private property and free enterprise, uses its economic-political-social control to add to the wealth, prestige, and power of its members, their families and dependents. Such economies exist during the more advanced stages of industrialization; when franchises, patents, and landownership and an interlocking business apparatus have replaced individual competitive enterprise by a virtual monopoly of the economy, and when accumulating surpluses of liquid capital give their private owners ample funds for propaganda and corruption. Such economies are found today chiefly in North America, although there are vestigial remains of them in the British Isles, Holland, France, Western Germany, and Japan. In Brazil, South Africa, and perhaps in Argentina the free-enterprise groups hope to establish some phase of monopoly capitalism. It should be noted, in passing, that during the heyday of monopoly capitalism (1870-1910) the policy makers who directed the monopoly-capitalist economies either had built or were trying to build geographically extensive empires in which the natural resources, markets, and other profit-yielding opportunities offered special privileges to the policy makers who operated the nucleus of imperial power and directed the affairs of the empire.

Fourth, public economies in which the distinction between business, government, and social control has disappeared in theory as well as in fact, and the government apparatus (municipal, state, and federal) owns and operates the major features of the economy, carries on public administration, and shapes public opinion. Under this setup the steel industry, the railways, the banks, the newspapers, and the radio are all public business, in the same sense that the highways, the post offices, and the schools were and are public business during the various stages in the development of profit economy. Public economies are customarily operated as a part of a general social plan which likewise includes education, health, recreation, defense, and other phases of public business. This co-ordinated social structure is usually directed by a one-party political organization, constituted by law as the sole agency of organized political activity. The leaders of the one party automatically become the leaders in making and implementing public policy. They therefore hold great power over the economy, over customary governmental affairs, and over the thinking and activities of the community. Such public economies have been established in countries such as the Soviet Union after 1917, eastern Europe after 1945, and China after 1949, where war devastation had so disorganized or destroyed the previous business-for-profit and business-for-power economies and so discredited the leadership which had been apparently responsible for war and the accompanying social disintegration, that a revolutionary change in leadership and in social institutions was either supported or tolerated by the populace.

The war devastation of 1914–18 and 1939–45 produced its normal harvests of social disruption and revolutionary agitation and action. In Asia the upset due to war was supplemented by the widespread opposition to colonial status imposed by Western imperialists in the course of their planet-wide search for plunder, profit, and power.

Fifth, co-operative economies, in which the development of consumer and producer co-operation paralleled the development of business for profit during the formative years of the nineteenth century. Instead of an economy dominated by profiteers, there is a mixed economy in which government owns and operates such public utilities as transportation and communication; in which private business, particularly small business, survives in agriculture, the production of consumer goods, and merchandising; and in which consumer and producer co-operatives are the largest organized unit in the economy. The co-operatives own and operate their enterprises for the joint or common advantage of their membership. Such economies exist chiefly in the Scandanavian countries. Each of the countries is still under the nominal direction of a hereditary monarch. In each of them the trade-unions, the labor parties, and the co-operatives have for years played a dominant role in shaping public policy.

4. Conflict between Economies

Technically, each industrialized community maintains a mixed economy in which there are vestiges of preindustrial production, some elements of business-for-profit and of business-for-power, many phases of public economy, and some aspects of co-operative economy. In each instance, however, one or another economic phase predominates. In Mexico, for example, while there is a considerable degree of industrialization, the economy as a whole is still preindustrial. Business-for-profit controls policy making in Switzerland and Australia. Business-for-power dominates the United States. Public economy is predominant in the Soviet Union. In Denmark co-operative economy is most in evidence.

Britain, Germany, Japan, France, and Italy are in process of transition. Before 1914 they were five of the chief centers of business-for-profit. War disruption crippled or wrecked the business-for-profit apparatus and all five countries are being transformed into business-for-power economies or into some form of public economy.

Each industrialized economy occupies its own level of development. Each is being modified by the swift changes incident to the present transformations in technology. There was never a time between 1870 and 1910 when Britain, France, Germany, and the United States, all of which were economies in process of industrialization, were at an identical economic level. Even Britain, France, and Germany, historically associated through centuries and in close geographical proximity, developed their profit economies out of different historical backgrounds and at differing rates. The development curve in North America deviated, both in time and in tempo from that of West Europe.

Since business-for-profit and business-for-power are internationally competitive, the growth of production and the increase in exports from one country—Germany, for example—threatened the position of another country—Britain, for example—in the markets of the Middle East. These economic rivalries spread over wider and wider areas during the crucial 1870–1910 period and were accompanied by political friction which led to general war in 1914. The military struggle began as a conflict between two groups of European nations, all of them partly or largely industrialized. The rival groups were led by the two most highly industrialized nations of Europe—Britain and Germany.

During the two decades which followed 1918, three of the industrialized nations—Germany, Italy, and Japan—replaced business-for-profit economies by business-for-power economies. The political line-up after 1935 was therefore the business-for-profit nations of Europe (Britain, France, Holland, and Belgium), strongly supported by the United States and Canada, on one side, and the three business-for-power nations (Germany, Italy, and Japan) on the other side. Though these two blocs—the Western or Allied powers and the Axis powers—were all, in theory, devotees of private ownership and control of economy, ideological and political antagonisms were so sharp that they led to war in 1939.

If economic, political, and social antagonisms and conflicts developed between nations at closely related levels of industrialization, the differences between private economies and public economies were bound to be even more extreme, and to manifest themselves in sharp ideological, political, and social contradictions which might easily mature into military struggle.

This, indeed, proved to be the case. In the period following the defeat of the business-for-power nations in 1945, the business-for-profit nations began a cold war of propaganda, against the nations which were developing public economies. Their denunciation of the Communists was, if anything, more bitter than the parallel propaganda drive against the Axis nations during the years before 1939, and far more outspoken than the diplomatic conflict which preceded 1914.

Meanwhile the industralized business-for-power economies of West Europe, with Britain in the lead, were being transformed into business-for-power or public economies, while the business-for-profit economies of the U.S.A. and Canada were developing into a unified business-for-power economy, and U.S.A. policy makers were doing their utmost to unify and arm the business economies into a Western Bloc strong enough to encircle and crush the Eastern Bloc of public economies.

The antagonisms which manifested themselves in the cold war of 1946–52 were traditional, ideological, and political, but not in any large sense economic. The peoples associated with the Eastern Bloc, led by the Soviet Union, were loud in their praises of Western economic techniques, particularly those of the United States, and eager to establish them in East Europe and China. Tractors and combines meant just as much in the wheat fields of Poland and the Ukraine as they did in North America and the Argentine. Whatever might have been the political and social issues behind the cold war of 1946–52, the economic forces pressed for co-operation rather than conflict.

Another factor should be noted in passing. Experience with war destructivity from 1914 to 1952 had demonstrated the uneconomic nature of power-age war. It was a commonplace in the thinking of the period that the wealth and energy devoted to military preparations and combat during the decades which began with 1914, wisely applied to the problems of raising the culture level, would have converted the Western world into a material paradise. (The money cost of war from 1914–18 and from 1939–45 was something like $1,500,000,000,000. If to this were added the cost of military preparations between 1903 and 1952, the total would reach well up toward $2,000,000,000,000.)

5. A Unified Economic Interest

Advances in industrialization during the two centuries which began around A.D. 1750 have made the economic problems and interests of the industrialized nations all but identical. Whatever issues separate them are political or social rather than economic. This means that the recent advances in science and technology have replaced the obsolete categories, "capitalist economics" and "socialist economics," by the closely parallel problems of all nations and peoples who are dealing with local power-age economic problems and the common problems of power-age world economy.

Specifically: *1.* The inhabitants of Moscow, Stockholm, London, and Chicago face an identical problem regarding food supply, housing, clothing, transportation, and the like, namely, an adequate and stable flow of goods and services from nature's storehouse to the consumer, throughout communities in which the individual, the family, and the neighborhood are all but powerless to provide for their own livelihood. This basic economic issue is present in every mass-production, power-age economy.

2. Each industrialized area requires minerals and other natural resources; the specialized agricultural products of tropical and temperate regions; the apportionment of foods and raw materials among the various nations and peoples according to their needs; international transport, communication, currency, credit; allocations of surplus to backward areas; adjustment of living standards, social security, and social opportunity. In legal language, these are "joint" problems rather than "several" problems. They must be handled collectively because when they are dealt with individually they lead to monopoly, inequality, conflict, and war.

3. Capitalism, fascism, socialism, communism, and other "isms," in this connection, become questions of power politics, social theory, or semantics. Making a living is no "ism." It is an unremitting daily chore which returns with each sunrise. Food availability under the conditions of city living; adequate, clean, and attractive housing; smoothly functioning public utilities; convenient means for education, health, and recreation depend upon similar technical devices, whether the economy be labeled capitalist or socialist.

4. Specify the problem thus: Chicago straddles the Chicago River. Moscow straddles the Moscow River. It is necessary to go over and under the river in both cities. The problems of bridging and tunneling are engineering problems, varying with the local terrain, but in both cases the end result must be the same, if the problem is correctly handled—traffic facilities which are adequate, efficient, and aesthetically satisfying.

5. What is true of city traffic is true of every other important phase of power-age economy. The problems presented are engineering problems and the means adopted for meeting them must be technically appropriate and adequate. With due allowance for variations in the local environment, the solutions which prove satisfactory in one industrialized center will be equally useful elsewhere. The techniques of construction, production, handling, and organization are as universal as the multiplication table.

People who live in industrialized areas are confronted with livelihood problems in which the resemblances so far outweigh the differences that they may be described as similar, if not identical. From this point, therefore, we shall concern ourselves, not with the differences existing in industrial economies, but with two practical questions: (1) what is the function and purpose of economics in the power age, and (2) what part must economics play in the life of a power-age community?

6. The Purpose of Economics

The function or purpose of economics is to provide and ensure an adequate and regular supply of the goods and services needed by a community in order to maintain its physical well-being. The proposition may be reversed in this fashion: activities which are requisite to provide a community with a supply of goods and services necessary to ensure its physical well-being are part of the science and art of economics.

Economics is therefore a field of community activity similar to education or health. Educators are charged with the task of transmitting to the oncoming generation the results of race experience, and inspiring the young with a desire to improve upon the past. Healthists are charged with the task of establishing and maintaining the highest possible level of physical, emotional, and mental sturdiness and vigor (a sound mind in a sound body). Economists are charged with the task of guaranteeing the community against untoward scarcity (poverty) by providing an abundance of the necessaries and decencies of life, and ensuring the community against physical insecurity by seeing to it that the abundance is continued on a stable basis.

The provision of stable abundance leads into three aspects of community life. (1) Meeting the subsistence requirements of the individual (food, clothing, shelter); (2) providing the subsistence requirements of the group (roads, schools, health services); (3) allowing a comfortable margin for innovations and improvements that will more adequately meet the needs of the individual and the community.

Economics, then, has as its main function the provision of a flow of goods and services adequate to supply necessities and decencies to the individual and the community. Economics does not stand alone, however, but borders upon a number of other fields of social activity, and for that reason, beside its main function, it has a number of related, derivative social functions, such as:

1. Supplying a surplus that will make possible a prolonged period of infancy during which individuals may be initiated into various aspects of the good life. Ultimately, the individual will be apprenticed to one or another technique, which will be his vocation or speciality. In the meantime, the educational system enables him to shop around and have a chance to mature his judgment and increase his certainty as to the vocation for which he is best fitted and as to the avocations which he feels should parallel his vocation.

2. Providing incentive, stimulus, and opportunity for the creative energies of the individual in the fields of craftsmanship, technical competence, discovery, and invention. At this point economics adjoins education. The school has the classrooms and laboratories. The economy has the workshops. The co-operation of education and economy is therefore the union of theory and practice. Small beginnings in this direction, initiated under the Cincinnati Plan and the Antioch Plan, have pointed a way which the planned public economies have tried to follow on a grand scale.

3. Supplying for all members of the community a margin of free time, during which they may pursue their chosen avocations. Power-age economy tends to be arbitrary and mechanistic in the vocational limitations which it prescribes for its working adults. Guaranteed leisure liberates from routine and enlarges the range of free choice.

4. Contributing its share to the order and harmony of the community by maintaining equitable, stable, human relations within the structure of the economy and by turning out goods and services which have, in themselves, integrity and beauty as well as utility. Thus the economy may become an example of organization, discipline, and creative artistry at the same time that its output maintains and raises the cultural level.

5. Training in co-operation and mutual aid can be given through daily contacts within the economic system, perhaps better than anywhere else in an industrialized community. Specialization and division of labor make power-age economy functionally co-operative. If human relations are sound in a production unit, it is a simple matter to add to the basic co-operative character of mass production a technique of volunteered mutual aid, in accordance with which men and women, instead of waiting until they must co-operate, will volunteer to share the tasks of their fellows.

6. Establishing the economic basis for the individual and the local community to exercise a wide margin of choice and therefore to enjoy opportunity for self-expression and individual and community growth and improvement.

These derivative functions and purposes of a power-age economy are the result of interrelations between the economic apparatus and other social institutions and practices. They should be considered chiefly in a study of sociology rather than of economics. They are mentioned here because a description of the livelihood process is not complete unless it includes a statement of the relations between the economy and other phases of community life.

7. The Field of Economics

We have stated that an economy exists to provide and ensure an adequate and regular supply of the goods and services which are required to maintain individual and social well-being. This general description of the field of economics may be subdivided in the following way.

1. Dealings with nature. Extraction, by mining, forestry, and agriculture, of raw materials, foods, and fibers. Making available for human use nature's stores of materials and energy.

2. Conversion of natural resources into producer and consumer goods and services. Fabrication, processing, and preserving. Industrial engineering, including planning, designing, and organizing.

3. Handling. The movement from place of origin to destination, transportation, warehousing.

4. Transferring. Contract. Facilitating and safeguarding the transactions necessary to the effective working of the economy. Money, credit, accounting, insurance.

5. Merchandising. Assembling various lines of goods and services in the wholesale or retail market. Display. Advertising. Disbursing goods and services to converters and consumers. Salesmanship.
6. Sharing the proceeds of the economic process. Division of the product. Surpluses. Reserves. Individual and social income.
7. Financing public enterprises. Taxation. Borrowing. Public debt. Inflation. Currency manipulation.
8. Over-all planning, budgeting, and auditing.

There are different ways in which this subdivision of the economic field may be made. Most writers on general economics have a favorite variant. The important thing for an understanding of economics is to have an idea of over-all purpose, and some sense of the detailed tasks involved in realizing that purpose.

8. Can Economics Be a Science?

This brief description of the field of economics places us in a position to answer the oft-raised question: is economics a science? We used the words science and art in the title of this introduction because we believe economics may be both.

Arts are modes of response and expression. The artist seeks to clothe his sensations and ideas in form, color, rhythm, and by these means to communicate with fellow artists or fellow humans. The arts include a wide variety of practices developed and followed by human beings in an effort to survive with a maximum of pleasure and a minimum of pain and to present reactions and points of view for the satisfaction of the artist and of the user or observer. Arts are practiced by many animals, especially the social animals.

Arts originate as a result of accident and experiment. They develop by the cut-and-try method.

Art has grown through milleniums. Science is a later development. There were beginnings of science among the ancients, the Greeks made notable scientific advances, but it has remained for

the men of the last four or five centuries to grasp the possibilities and extend the field of science.

What is science? Basically it is a way of approaching the cosmos which differs fundamentally from the cut-and-try arts, from aesthetics, ethics, and religion. The scientific approach which is rational or reasoned, includes (1) observation of phenomena, wherever possible under test conditions; (2) recording, analysis, and comparison of observations; (3) classification of findings; (4) generalization based on findings and experiments; (5) further observations and experiments designed to verify the generalizations; (6) a conceptual order, scheme, principle, or law which will describe the workings of the field in which the experiments have been made.

Conceptual schemes, based on generalized principles lead in three directions: (1) an explanation of the how and the why; (2) the formulation of a plan or program to utilize the new knowledge; and (3) the organization of productive processes, beginning with the plan, formula or blueprint stage. At this point the scientist joins forces with the technician. Theory is concretized into practice.

Theory and practice therefore include (1) hunches, hypotheses, discoveries, inventions; (2) organized and systematized research by trained specialists; (3) a project, such as the Panama Canal; and (4) the co-operation of science and engineering in transmuting theory into practice.

Many animals and most men are artists rather than scientists. They shun theory and turn to practice, because practice is traditional and habitual and therefore easier than theory. Yet some animals, and within rather narrow limits, all men have at least the rudiments of conceptuality, and are therefore capable of the intuition, creative thinking, and reasoning out of which science arises.

We have digressed somewhat in presenting this analysis of science and art, theory and practice. The issue is fundamental to all thinking about society. For ten thousand years the provision of human livelihood has been an art. We humans have developed to a point at which economics can become a science.

Segments of science occupy large areas in the field of livelihood.

Examples are hydraulics, construction, navigation, mechanics, electronics, industrial chemistry. The over-all picture is quite different—a frenzied struggle for acquisition; a competitive conflict between rival groups, each promoting its sectional interests to the point of mechanized warfare and mutual destruction; the ruthless exploitation of man by man, the payment of unearned income with its premium on parasitism; a tiny minority of self-seeking profiteers plundering natural resources, corrupting government, and robbing and poisoning entire populations in order to enhance its wealth and power.

There have been repeated attempts to make a science of economics. Idealistic followers of Fourier, Saint Simon, and Robert Owen together with such religious sects as the Shakers, the Mennonites, the Dukhobors, and the Mormons have attempted to establish communities which would prove oases of order and peace in the desert of chaos and conflict. The classical economists headed by Adam Smith and John Stuart Mill tried to create a science of competitive profiteering. Karl Marx spent a large part of his life in an attempt to discover and expound the principles of capitalist evolution and thus provide a scientific basis for socialism. Lenin and his coworkers sought to apply the more important techniques and procedures of natural science to the planning, organization, and administration of a continent-wide community.

Specialization, coupled with the industrial revolution, inaugurated an era in which men were forced to choose between coordination on one hand and competition, conflict, and mutual annihilation on the other. Technically, the livelihood apparatus was systematized at the same time that it was worldized. Politically it was fragmented into four score of sovereign states, each making its own rules and going its own way to catastrophe. The survival of an interdependent technology necessitates a scientific approach—an over-all concept, applied to the world community in the form of a plan, an engineered pattern of procedure, and a guaranteed livelihood for members of the human family.

Economics may be made into a science if those who direct livelihood activities will (1) find adequate answers to the questions how? and why? (2) take the next necessary step to the stage of plan and blueprint, and (3) will then turn over economic administration to a staff of competent social engineers. Such a program presupposes the acceptance of the livelihood struggle as a common or public enterprise, with a common purpose, and with results shared according to plan.

This statement about the field of economics and its role in the conduct of human affairs may be summed up in three sentences. Getting a living in present-day industrialized society with its wide variety of interests, its controversies and conflicts is a matter of first-rate public importance. Economics is the theory and practice of providing the individual and the social group with subsistence. As such, it is one branch of social engineering—the sum total of those theories and practices whereby a community deliberately and rationally provides itself with the goods and services necessary to the maintenance of the life process and utilizes them to ensure survival, encourage achievement, and promote improvement.

ECONOMICS
FOR THE POWER AGE

CHAPTER 1 Subsistence

PRINCIPLE 1 *Individual and Social Life are conditioned by subsistence*

1. Subsistence and Social Survival

Subsistence includes those goods and services which are necessary for physical survival. The warm-blooded human body is a complex organism whose growth and health depend upon a minimum of nutriment, water, air, sunshine, and external warmth. Human society is a complex arrangement of specialized institutions and activities whose continued functioning necessitate a minimum supply of raw materials, energy, implements, labor power, planning, co-ordination, and direction. In the absence of these requirements, life for the individual and the community is difficult or impossible.

The urge to survive is so strong with humans and other sentient creatures, that it is frequently described as the first law of nature. The pressure of the survival urge shapes and modifies individual and social conduct patterns, often to the point of transforming or revolutionizing them in comparatively short periods of time. Hence the phrase "economic determinism."

Human beings are attracted by situations which increase their survival chances. Likewise they are repelled by situations which threaten survival. Consequently people have pressed into the fertile valleys in order to escape the hardships of desert and mountain.

Under ordinary conditions, men and women will exert themselves to obtain and retain improved means of subsistence.

Economic incentives are a major factor in shaping conduct. Correspondingly people will resist interference with their efforts to survive.

Health of body, emotional balance, state of mind, outlook on life, social security and stability are influenced in varying degrees by the ease or the hardship involved in obtaining subsistence. Thus the livelihood problem is a fact of primary importance in determining the lives of individuals and communities.

2. The Physical Environment Conditions Subsistence

Subsistence depends first upon nature. There are parts of the earth which are unsuited to human life, because of high altitudes, extremes of heat, cold, wetness, dryness. Semitropical climates, with relatively high temperatures, permit man to survive with nutriment, water, and air alone. In temperate climates, where most industrial communities are located, housing, clothing, and fuel are as necessary as nutriment, because for lack of them the human body perishes. For practical purposes, therefore, in the industrialized regions of the earth, subsistence consists of a supply of food, shelter, and clothing necessary to keep life in the human body and provide for its efficiency, plus a supply of the raw materials, implements, labor power, and leadership necessary to the successful functioning of the community. A modern industrial community depends upon electric energy, raw materials, finished or semifinished manufactures, transportation, and communication as well as upon food, clothing, shelter, and fuel.

The apparatus with which a community provides the necessities and decencies required by consumers, and the capital goods needed for community function is its economy. Or, in reverse, the function of an economy is to provide subsistence for individuals and for the community as a whole, and to produce a surplus sufficient to ensure replacements, improvements, and betterments.

The livelihood problem thus resolves itself into two factors. The first is the number of human beings for whom subsistence must be provided, the standard at which they are accustomed to live, and the customary requirements of the community apparatus. The second is the capacity of the local, national, or planetary economy to produce and apportion a quantity of subsistence adequate to sustain the local, national, or planetary population at its customary level of subsistence.

3. Modifications of the Environment

Many of the conditions surrounding human life may be modified. As we shall see in the course of the present study, these modifications may be made in nature or in the social environment. Such changes may increase or decrease the available supply of subsistence.

Modifications which increase the available supply of subsistence include a wider utilization of natural resources; raising levels of fertility, selection, and breeding of domestic animals and vegetation; the employment of devices for fabricating, transporting, and preserving foods and other materials; building construction; harnessing animal power; and various forms of mechanical energy. By such means a greater number of individuals is enabled to obtain a more secure subsistence on a given area of the earth's surface.

Modifications of the environment which decrease the available supply of subsistence include reduction in the supply of minerals and fuels, deforestation, practices which lead to a decrease in the fertility of land or to the loss of topsoil through erosion, lowering of the water table, economic unbalance resulting in decreased use of productive capacity, "depressions," political and social unbalance leading to friction, and eventually to war, with its aftermath of starvation and disease.

4. Subsistence in a Power Age

Recent experience with automatic machines employing a large amount of mechanical power provides excellent illustrations of the ways in which modifications of the social environment may increase and decrease available subsistence.

The power age differs in one important respect from previous ages. Before the power age, at least nine tenths of humanity secured most or all of their subsistence as a direct result of their own efforts. The tribe, household, or village raised food, prepared it, and ate it; procured raw materials, converted them into dwellings, clothing, and implements and inhabited the dwellings, wore the clothing, and used the implements. In short, they lived under an economy that was largely self-sufficient. The economic cycle from natural resources to consumed goods and services was completed within the tribe, household, or village.

Power-age economy is differently organized. Mass production involves the concentration of specialized workers in mines, factories, and workshops. Work concentration leads to population concentration in cities. City populations cannot produce the food and raw materials to meet their requirements, but must import them. The growing complexity of industry and the increasing density of population necessitates the import of raw materials and food from more and more remote parts of the planet.

Industrialization thus places between nature and the consumer an elaborate, co-ordinated, planet-wide economic apparatus. Economy in the power age becomes a world-market economy, in which the producer goods reach each factory and the consumer goods reach each city through the channels of planet-wide exchange, trade, or barter.

The interposition of a market economy between the productive process and the ultimate consumer leads to widespread interdependence. It also involves elaborate processing, particularly of food. The gardener in a mild climate who consumes his own fruits and vegetables has little need for storage and no need at all for packaging, transportation, and handling. An industrialized community introduces many intermediate steps into the feeding process.

1. Agriculture employs chemical fertilizers, concentrated poisons in the form of insecticides and sprays; machinery; highly bred stock, stuffed with protein concentrates.

2. Since farm products are intended for a distant market, they are stored, canned, frozen, and processed in various ways. Thus, natural foods or foods in the natural state are replaced by artificial or synthetic foods, which have been more or less completely

converted from their natural state, and which in consequence, may have lost many of their natural qualities in the course of their conversion.

3. Food processing may increase palatability. It alters or destroys basic food values however, and in the case of extreme devitalization may convert nutritive substances into slow poisons.

4. Widespread use of inferior foods leads to physical disorders such as digestive troubles, tooth decay, and difficulties with the circulatory and nervous systems. These in turn lead to the upbuilding of a drug industry and an entire specialized service to take care of the multitude of diseased bodies.

5. Side by side with the disease department of every industrialized community is the drug department, devoted to the production of alcohol, nicotine, caffeine, and other sedatives and soporifics which deaden sensitivity and enable human beings to live the hectic, high-pressure lives associated with concentration in urban communities.

City dwellers cannot secure their food on a use basis. Instead, it passes through the market. The same thing holds for housing, clothing, and the other items which comprise the necessaries and decencies of urban living.

Likewise, city dwellers are unable to provide their own services. Villagers walk. City dwellers ride in busses, subways, taxis, and elevators. Villages are self-regulating. City dwellers are pushed around by uniformed police. Villagers hew their own wood, draw their own water, and repair their own streets. City dwellers depend upon a water department, a system of fuel supply, and a highway department. City economies are far more interdependent and less self-sufficient than tribal or village economies. The industrialization and urbanization of a society pose economic problems of the utmost gravity which are absent from preindustrial economies.

5. Population and Subsistence

Subsistence, to power-age man, means an adequated and varied supply of consumer goods and services which would have spelled fabulous luxury to peoples living under preindustrial and preurban cultures. Beside and far beyond that, it includes a wide range of consumer capital goods or hard goods such as housing (with plumbing, heating, lighting, refrigeration), a bicycle, motorcycle or car, and a multitude of electric gadgets which add to comfort and convenience. Beyond that again, the culture pattern of power-age man rests upon an immense substructure of capital producer goods and services engaged in agriculture, mining, power generation, manufacture, transport, communication. Consumer goods ready for use, consumer hard goods, and producer capital goods and supplies all form part of the subsistence pattern of the power age.

Each addition to the population of a power-age community therefore involves additions of consumer and producer capital which result in a corresponding expansion of all phases of power-age economy. Under these circumstances the age-old question of maintaining a working balance between population and subsistence becomes increasingly acute.

Population-subsistence equilibrium presents an issue of vital concern to every modern group because of the sharp contradiction between nature's method and man's method of approaching the problem. Nature has a simple formula for a working balance between population and subsistence—produce a comfortable population surplus and allow the less fit or the less fortunate to perish when available subsistence is exhausted. In simpler life forms such as plants and aquatic creatures, the ratio of seeds or eggs to mature survivors may be a thousand to one, but in nature's economy the thousand which perish are of little consequence compared with the one which survives, matures, and reproduces its kind.

Power-age man has adapted a population-subsistence formula which differs basically from the formula of nature. It begins: "All human beings have a right to survive. If subsistence is not adequate, its volume must be increased until it meets the survival needs of the population." Is this formula for the relation between population and subsistence workable?

Thomas Malthus, writing 150 years ago, answered the question in the negative, and his answer has been a center of controversy ever since. "There are a certain number of seats at nature's table," said Malthus. "When these seats are all occupied, newcomers must either push the old-timers away from the table, and let them starve, or else the new-comers themselves must starve."

Furthermore, Malthus argued, food-supply increase is far less rapid than population increase. Consequently it is only a question of time before nature's formula, production of surplus and elimination of the unfit and the unfortunate will operate among humans as it now operates among plants and animals.

Malthus' argument was opposed by theologians who insisted that God is good, that he has created a good world and will not allow his creatures to suffer unnecessarily. Scientists added their bit by asserting that the unused resources of the planet, plus improvements in production techniques, would permit an indefinite increase in the human population.

Malthus' *Essay on the Principles of Population* was published in 1798. During the next century the theologians and the scientists seemed to have things their own way, for while human population increased, the volume of goods and services produced in the industrialized West increased far more rapidly. This production increase was due, first, to improved machine and power techniques. It was due even more to the opening up, by railroad, roads, motor vehicles, and air transport, of hitherto unavailable land masses in the Americas, Asia, Africa, and Australasia and to the utilization of little-used or unexplored natural resources.

For a time the resources seemed inexhaustible. The early settlers on the North America Atlantic seaboard, for example, resented the "interminable" forests and attacked them with ax and fire in an effort to clear space for living and farming. From the viewpoint of 1650 New England, the forests were inexhaustible. Three centuries later, however, New Englanders, having exhausted their first-class timber stands, were bringing lumber from the south or from the West Coast and getting some of their wood pulp from Europe. Meanwhile industrialized Western Europe, the homeland of the scientific production techniques which were to have provided a conclusive answer to Malthusian pessimism, staggered back toward economic stability, its populations harried by malnutrition, a large part of its food and raw materials coming from overseas and on a grant-in-aid basis.

Malthus foresaw war, famine, and disease as the only effective agencies for maintaining the population-subsistence balance of West Europe. Within a century after he stated the problem, war, malnutrition, and disease were wiping out West Europeans by millions.

Malthus' conclusions were based on certain facts, which he observed and classified. The first of these was the high birth and death rates among the British and other rural peoples who were taking jobs in the newly erected factories and moving into the newly constructed industrial cities. The second fact was the spilling over, through migration, of the surplus European populations into the Americas. The third fact was the size of families among migrants to new land, notably North America, in some parts of which population was doubling by natural increase within a single generation. To Malthus these facts proved that human population followed nature's formula, pressing constantly upon food supply, exceeding subsistence, lowering standards of living, forcing up the death-rate and thus eliminating the surplus.

Certain facts, however, Malthus was not in a position to observe. He did not foresee the phenomenal reduction of death rates during the nineteenth century, and the doubling of the average length of human life in those countries where applied science was most successful in curbing infections and contagious diseases and in reducing infant mortality. Nor did he foresee the voluntary restrictions that would be imposed by the well-to-do upon family size. Not only in Scandanavia, Switzerland, France, and Britain did the growing middle class limit family size below the rate of its own replacement, but the same thing took place in New Zealand and New England, where food was more abundant and economic surpluses were larger than they were in Western Europe.

The net conclusions from nineteenth century experience bore out the Malthusian contention. The Old World—Europe and Asia—continued to produce a human surplus, over and above its available subsistence. This surplus starved, died of preventable disease, migrated, or tried to migrate. The New World countries filled up with dizzying rapidity. Britain and the United States were examples of the trend. Britain led the nations in industrial development during the greater part of the nineteenth century. Its population was 9 millions in 1800, 29 millions in 1850 and 37 millions in 1900. Thus the 1900 British population was four times that of 1800. The United States, in 1800, was still a frontier facing a wilderness little populated by white men. Into this wilderness poured a flood of migrants during the whole of the nineteenth century. In 1800 United States population was 5 millions; in 1850, 23 millions; in 1900, 76 millions. At the end of this one century, therefore, United States population was fifteen times what it was at the beginning of the century.

Other countries which were undergoing the process of industrialization or which were being opened up to settlement by white Europeans experienced similar explosive population growth. The results appear in the figures for total world population.

6. Recent Population Trends

World population has increased rapidly during recent times. It doubled during the nineteenth century. It also doubled during the eighty years which began in 1870. In 1800, the planet earth had a population of some 900 million human inhabitants. By 1950 the world population of about 2,400 millions was increasing by some 25 millions each year.

Half of the world population lives in Asia, a quarter in Europe, an eighth in the Americas, a fourteenth in Africa. Two countries of Asia, China and India, contain more than a third of mankind.

The multiplying millions of human beings present a terrifying picture to the sensitive student of society. More than half of them, says the Food and Agricultural Organization of the United Nations, are inadequately fed. Immense numbers, say the *United Nations Demographic Year Books,* die prematurely. A British child, at birth, will live on the average to be sixty, a Swiss child will live to be sixty-five, a U.S.A. child will live to be sixty-six, a Swedish child to sixty-seven. Infant mortality rates (deaths per 1000 live births) in 1946–47, were forty-four for Britain, thirty-nine for Switzerland, thirty-two for the United States, and twenty-five for Sweden. Such rates may be described as normal for industrialized nations in the mid-twentieth century.

By contrast, a Chinese child, at birth, lives, on the average, to be forty-three, a Brazilian child to be thirty-seven, an Egyptian child to be thirty-six, a child in India to be twenty-six. Of every one thousand living children born in China, 125 die in the first year, the figure for Brazil is not given, in Egypt it is 150, and for India, 150. The startling contrast between these two sets of figures represents the extremes of what is normal under present-day conditions with population and subsistence in balance, and the curtailment of life by starvation and disease which results from a lack of balance between the two factors.

Until the latter part of the nineteenth century, population pressure among the more rapidly increasing Europeans and Asiatics was relieved by migration to the Americas, Australasia, and Africa. Restrictions were imposed on the migration of Asiatics after 1875 and on the migration of Europeans after 1910. During the years of turmoil and hardship which followed 1911, both in Asia and Europe, migration was made difficult or impossible.

7. Five Economic Tasks

Power-age economy faces five tasks which are associated with its subsistence. The first of these is the establishment and maintenance of a workable balance between population and the means of livelihood. Malthus and his followers are far from being discredited. Their general formula is still the formula of nature and the formula under which a large segment of human society operates. The number of seats at nature's table is still sharply limited. If there are more applicants than there are places, the surplus must starve or suffer some other untimely death.

Science promised to counteract the effects of the Malthusian formula by increasing subsistence as fast or faster than the increase in population. For a time the scientists, aided by little-used resources, made good on this promise. Latterly, however, science has turned its attention increasingly to destruction. Its achievements in this field are attested by the curtailment of food production, the destruction of dwelling units, and the exhaustion of consumer reserves during the war years which began in 1911, and by increased physical hardship among some of the most highly

industrialized peoples, and greater unbalance between population and subsistence. Even during the war years, with their widespread destruction of life, the human population of the planet rose, while the total of subsistence declined.

Rising standards of living which have accompanied the population increase of industrialized countries make additional demands on the supply of natural resources and multiply the requirements for capital goods. Literally, industrial society demands more and more goods and services from less and less natural resources. Synthetics might be the answer were it not for the fact that the production of synthetics also involves a drain on natural resources and even heavier capital goods requirements.

Western man cannot hope to establish a working balance between population and subsistence until he has developed a system of population controls which will follow and not lead the subsistence increase. At the moment humanity faces a vast subsistence deficit which appears as malnutrition and outright starvation. This subsistence deficit (or more accurately, this population surplus) can be dealt with effectively through checks on population increase, through reductions in living standards, through a vast increase in the total net productivity of the economy or through wholesale liquidation of the population surplus.

Second among the economic tasks is an adjustment of the unequal living standards in different population groups. This result will be brought about only when available economic surpluses are utilized to raise the living standards of the more backward to those of the more advanced.

Recent practice has sanctioned the use of economic surplus to raise the standards of the more advanced segments of the population, thus widening the gap between the advanced and the backward. This practice must be reversed in the interest of economic justice and social security.

The third economic task associated with the relation of population and subsistence involves migration from the centers of highest population density to the less densely populated areas of economic opportunity. Such a migration from Europe to the wide open spaces of the Americas and Australasia has been going on for four centuries. During the early years of the present century, however, the migration has been checked or prohibited. Many of the spaces remain wide open but political restrictions have reduced the migration of Asian and European population surpluses from a broad stream to a mere trickle. Meanwhile population in both continents has steadily increased.

Neither stability nor security can exist on a planet, bound closely together by speedy transportation and instantaneous communication, while some nations and peoples enjoy surpluses of land and capital and others are suffering the hardship of economic deficit.

Fourth, there can be no static formula for the relation between population and subsistence. Population trends modified by productivity will vary with climatic conditions and with invention and discovery. There will be alterations in customary standards of living. These and other changing factors will necessitate constant readjustments in the population-subsistence relationship. Only the large purpose will remain constant: the maximum in equality of opportunity for the good life, offered to each individual and each social group.

Fifth, and last in this listing of economic tasks arising in connection with the provision of subsistence, is the output of quality products. Man does not live by bread alone. Associated with every good and service which the economy supplies to its members there are three possibilities: (1) its usefulness or utility, (2) its capacity to satisfy esthetic wants, its beauty, and (3) its improvability or better-ability. The provision of subsistence, like every other aspect of social endeavor, is subject to three basic principles or laws: the law of serviceability; the law of harmony and beauty, and the law of betterment or improvement.

CHAPTER 2 Natural Resources

PRINCIPLE 2 *All subsistence originates with nature*

1. Man and Nature

Strictly speaking, man is a part of nature, since he is one of the ingredients which goes to make up the totality which we call the earth, the planetary system associated with the sun, or the island universe of which the earth and the solar system are parts. But for the purposes of our present discussion, like every conscious observer, we shall separate ourselves from the thing observed, and instead of writing about "man in nature," we shall consider "man and nature." By so doing, we divide the universe into two categories. In the first is man the observer; in the second is everything else. From that "everything else," which includes the natural and social environments, comes the subsistence upon which the human body and human society depend for their survival.

We noted briefly, in the previous chapter, the relation between population and food supply, and called attention to the dire consequences that overwhelm a people which is too numerous to maintain itself on the existing volume of food. Food supply is only one of several urgent factors in man's dependence upon nature.

Man's dependence upon the atmosphere is shared by the various living vegetable and animal forms. Rocks could exist without air. Vegetable and animal life require it.

Human life, together with vegetable and animal life are also dependent upon water, whether that water exists as water vapor, humidifying the atmosphere, or as the liquid which makes up so large a part of the weight of plants and animals. Two thirds of the human body is water. The blood, which plays so large a part in the preservation of body life, is almost entirely water. Man, like plants and animals, daily takes in and throws off a large quantity of water, so that the constant renewal of the water supply is necessary to survival.

Man can live for weeks without food, for days without water and for minutes without air. His dependence upon nature is therefore constant.

This brief summary would not be complete without some mention of the relation between man and those aspects of nature which lie beyond the earth, its water table, and its atmosphere. The sun and moon both play a role in human life. The sun gives light and heat. The moon exercises an influence over the tides, over the germination and growth of vegetables and over certain aspects of animal and human life. How long mankind could survive without sunlight, we do not know, but since the growth of vegetation depends upon sunshine and since man's food supply comes originally from vegetation, humanity's need of the sun is as great as its need of earth, water, and air.

There are other sources in nature upon which man depends for his survival. The ether in which we exist is pulsating or vibrating at a variety of rates. Man sees one rate of vibration, hears another, feels a third. Precision instruments report a great range of vibratory phenomena which cannot be detected by human eyes, ears, and sensitive touch centers. Take "cosmic rays" as an example. They have some relation to life on our planet. They come from somewhere. Evidently they are important to man, yet we cannot say exactly how they influence our lives.

Under modern conditions human society employs fire in a variety of ways, from the campfire in the woods to the consumption of fuel for power production. Fire is one of the essential factors in establishing and maintaining power-age technology.

Natural resources—earth, water, air, fire, the sun, moon, planets, stars, the entire island universe in which we live—are necessary and useful to man. Man is a part of them, and they enter into and provide the background for various aspects of his life.

Most of these resources are abundant. That is, they exist in

such quantity that after everyone has taken what he needs, there is still something left over. This is true of air and sunshine in the countryside. It is also true of sand on the seashore and water beside a flowing stream. It is true of fire. It is true of cosmic rays. Economists have usually referred to these abundant resources as "free goods."

Certain resources, however, are not abundant. Water in a desert, and air and sunshine in a deep cave are scarce. So are fertile land and attractive locations along lakeside or seashore. These scarce articles have been called "economic goods" by the economists, because they could be owned as property and sold for a price to those who lacked them.

We shall use the words "abundant" and "limited" to describe the two groups of natural resources. Some of the most essential natural resources are abundant. Others are limited. It is with the limited resources that we are most concerned for the moment, because they have been grabbed off by greedy individuals and groups and held as special privileges by their owners. The most prevalent example of this handling of natural resources is the ownership or monopoly control of parts of the earth.

Abundant resources, although necessary to physical survival, present no social problem. There is enough sunlight and fresh air for all. The limited resources, however, are matters of grave concern. Unless they are shared or rationed on some basis that will be fair to all concerned, they will become the object of monopoly, greed, jealousy, and competitive struggle. Later we shall have more to say about this matter. At this point we wish to discuss those aspects of nature which are related to the limited sources of our food supply and of those raw materials which are needed in an industrialized community.

2. The Earth

Man lives on the earth. His body is built up and constantly replenished with substances from the earth. To the earth he turns for food and for the materials out of which he fabricates his shelter, his clothing, his implements, his tools and machines.

Upon the earth, industrial man depends for much of the energy which is the distinguishing feature of the power age.

Perhaps the word "fertile" is the best term with which to designate more desirable parts of the earth. Although it is ordinarily used to describe the soil, in a broader sense it may include not only soil texture, but the ingredients of the earth's body. A deposit of coal or tin would be an example of fertility. So would a source of water power. The sources of subsistence contained in the earth may be considered a measure of its fertility.

Two comments may be made about the earth's fertility. The first is that the supply is abundant. The second is that it varies from one part of the earth to another. Out of the abundance of earth fertility, man has fed himself and has built the material aspects of his culture. Over the variations in earth fertility he has quarreled, robbed, and murdered through the ages.

Eskimos have a quaint saying: "No one has ever attempted to take away our land." The reason is plain. Few men care to live on a fish diet, in ice huts, built upon soil that is usually snow covered and always frozen.

Dwellers in well-watered river valleys—the Rhine, the Nile, the Ganges, and the Yangtze—are in a far different position from the Eskimos. The valley climate is friendly. The soil produces abundant vegetation. Valley peoples enjoy both quantity and variety of subsistence. At the dawn of history valley dwellers, nomads, and hillmen were fighting for the possession of fertile spots on the earth's surface.

Also, from the dawn of history, men have battled for the control of strategic and defensive positions such as promentories, islands, peninsulas, or the mouths of rivers.

Metal users were seizing and holding copper and tin mines when the first records were written on stone monuments and clay tablets. Industrialization has enlarged the number of essential minerals and has intensified the struggle for their control.

Although men have been helping themselves to earth resources for thousands of years, the available stores are still abundant. Voyaging to various parts of the planet and the discovery of distant human cultures have served to call attention to the richness,

the immense variety, and the notable inequality in the distribution of natural resources.

3. Variations in Fertility

Whether viewed from the standpoint of human history or of present-day human hopes, fears, controversies, conflict, expenditures, and wastes, the most distinctive character of the available earth resources is not their relative abundance but their variability both as to quantity and quality. Men do not say to themselves and to one another: "If we put our heads together and all lend a hand we can convert nature's stores into a moderately good living for every member of the human family." Rather they say: "If we can get title to the choicest part of nature's storehouse, and can make ourselves strong enough to hold our advantage against all comers, we can have more of the good things than anyone else and make the others pay us a tribute upon which we can live without the need of doing any work."

In a very real sense therefore modern Western man is more concerned with getting, keeping, and protecting than he is in sharing and mutually enjoying. His economy, organized in terms of "mine" rather than "ours," is based on the variations in the fertility of natural resources.

Variations in earth fertility assume a number of forms:

1. Man is an earth dweller and cannot survive in water. Yet the major part of the earth's surface is water—oceans, lakes, and rivers. Of the remainder, a considerable portion consists of bogs, swamps, and marshes. Since man requires dry land for his activities, the water-filled and water-logged portions of the earth's surface possess minor interest for him.

2. Much dry land is inhospitable to man. Broken country, steep mountain slopes, land lying at high altitudes, and deserts are thinly populated by human beings.

3. Climatic variations attract or repel human beings. Men avoid extreme cold and heat, extremely heavy rainfall. Preindustrial human populations were concentrated at points having moderate rainfall and moderate to warm temperatures. Industrial populations are concentrated at points having moderate rainfall and moderate to cold temperatures.

4. Topsoil has been a factor of primary importance in attracting or repelling human beings. Topsoil produces vegetation and provides many of the foods and fibers upon which human beings depend for nourishment and protection against the elements. Topsoil varies in depth from an inch or two to many feet. It also varies in productivity. Erosion moves soil from the slopes into the valleys, where food supply is likely to be more abundant and more easily obtained. Fertile valleys have been seized by the strongest human groups and held by them until a stronger group could occupy the rich crop and grazing land.

5. Industrial man needs food sources, of course. But he is particularly interested in the fuels and metals which provide energy and the materials for his machines. The demand for food-producing areas and mineral-bearing areas increases as population grows and industry develops.

6. Another factor of importance is the extent of fertile areas. A large fertile region is more advantageous than a small one because it makes possible greater magnitude of population, of wealth, and therefore of power.

7. There are certain regions of the earth which possess a maximum of advantage as dwelling places for human beings. They are land areas with favorable configuration, moderate and varied temperatures, adequate rainfall, sufficient topsoil, and a quantity of the minerals required for industrialization. The areas which meet these conditions are largely in the North Temperate Zone. They are found in a part of North America and in a belt running across Europe and northern Asia. It is in these areas that industrial economies are most extensive.

Looked at from the viewpoint of human subsistence, the earth is "good" in spots,—here an oasis, there a productive river valley or black-earth prairie, yonder a deposit of petroleum or iron ore. But the best of these choice spots are few. Between them lie vast stretches of water, frozen tundra, mountain country, marshland, and desert. The differences in productivity between the best and the worst of the earth areas are as 10,000 to 1.

Given the present human population of the globe, only a tiny fraction of mankind can live in the earth's garden spots. For each one who dwells in Eden, a dozen or a score must be satisfied to live in less favored regions.

From this it does not follow, however, that the dwellers on marginal land cannot share in Eden's products. Quite the contrary, all over Europe and North America, people enjoy food and raw materials from every corner of the earth. Had these Westerners been wise enough to avoid the war destruction of 1910–50; and to devote their energy, their science and their technology to production and well-being rather than to destruction and the accumulation of power, they would today be in receipt of an immense flow of varied goods and services.

The present human dwellers on the planet will find the earth "good" only if they are willing and able to pool the natural resources and share the nature product. If they continue to compete for exclusive possession of the garden spots, they will waste the resources and exterminate each other.

4. Vegetation

We have been discussing natural resources in general. Now we shall take up a particular resource—vegetation.

Vegetation provides the food supply upon which animals (and man) depend for their existence. Since some animals (and men) eat each other, the food supply may be derived from vegetation at second or third hand. The fish who lives on other fish and the carnivorous mammal may sustain life upon an exclusively flesh diet, but at some point in the series, fish and mammals draw their sustenance from vegetation.

Grasses, herbs, fruits, nuts, fibers, wood are vegetable products upon which animals depend, directly or indirectly for subsistence.

Among different types of vegetation we select trees for a few words of special comment. Trees are widely distributed geographically. Outside of the polar regions, the high mountains, and the deserts, trees are one of the noteworthy and pervasive features of the natural environment. Certainly this was true of Europe and North America.

There has been a close association between human beings and trees. Men have gone to trees as a source of food (fruits and nuts), as a source of structural material (houses and public buildings), as material for boats and ships; as a source of fuel and as one of the most important raw materials used in the fabrication of implements, tools, gadgets, and plastics. Trees have made a noteworthy contribution toward the building of human culture.

Behind these immediate contributions of trees to the human culture pattern, are four other long-range factors of transcendent importance to mankind.

1. Trees reproduce themselves in ordered majestic cycles of forest growth, which move through centuries to the forest climaxes and extend themselves as far as soil, rainfall, and temperature will permit. If given a chance, the forests, of themselves, renew and perpetuate their supplies of food, building material, fuel, and raw material.

2. At the same time, and through the same process, trees build topsoil, and with other forms of vegetation lay down the strata of carboniferous material which become coal, lignite, and petroleum. For the moment, let us turn our attention to topsoil. Tree roots spread through the earth, absorb water which carries minerals in solution, transfer this potential nourishment to the leaves where the water is given off (transpired) and, with the aid of sunlight, the minerals are converted into building materials and carried through the trees' cell pipe lines to renew and extend root, trunk, and branch tissue. Trees drop leaves, twigs, and branches to the forest floor. At the end of its life cycle, the tree trunk falls and adds its contribution of organic matter. Microorganisms, working in this raw organic matter, convert it into humus, which in its turn provides additional nutriment for the feeding roots of the trees and other forest vegetation. Under favorable conditions, a forest, left to itself, will add an inch of topsoil in from three to five centuries.

3. Forests conserve moisture. A forest floor is like a sponge. The tiny feeding roots near the surface of the ground penetrate the humus and spread into the heaps of newly fallen leaves and twigs. Rain, dropping on the forest floor, is held in this dense mass of roots and humus. The leaf cover, by excluding direct sunlight, reduces evaporation. Gradually the water released from the forest floor finds its way into springs and streams. In the absence of a forest cover the rain would wash immediately from a sloping land surface, carrying with it the lighter particles of topsoil. The forest floor retains the water over a considerable period and at the same time holds the topsoil in place.

4. Forests regulate climate. The water vapor transpired from the trees increases air humidity. The water retained in the forest floor and gradually released into springs and streams provides a moisture supply for vegetation, and thus enlarges growth possibilities.

A single tree is a symmetrical, colorful, dynamic, fruitful expression of the life process as it manifests itself in the vegetable world. A forest is a magnificent marshaling of such forces. The forest, as we know it today, is an essential factor in the maintenance of the more evolved life forms on the planet.

Pretechnical man lived in and with and from the forests. Technical man, in order to till the soil, build and heat houses, construct towns and cities, and provide the great quantities of wood and wood fiber required by technology, has been a wholesale destroyer of forests.

Topsoil is distinguished from subsoil by the presence of humus, which is organic material, of either plant or animal origin, in process of disintegration. It is from humus that plant life secures the bulk of its nourishment, and it is upon plant life that animal life feeds, either directly or indirectly. Topsoil is therefore the key natural resource behind man's food supply. This holds as true for man in the technical age as in the age of animal husbandry and hand implements.

Organic matter—the leaves and stems of plants and the droppings and bodies of animals—is transformed into plant food by the action of microorganisms which form a part of the topsoil. Earthworms also play an important role in this process. Topsoil is therefore a scene of strenuous reconversion of unassimilable organic matter into plant food. Hence the term "the living soil" is often applied to one of nature's busiest workshops.

Rock disintegration, the concentration of rock particles by wind and water, sunshine, moisture, soil bacteria, earthworms, lichens, vegetation, insects, and animal life have co-operated, through ages of time, to produce the topsoil from which both plant and animal life derive their subsistence.

Topsoil is relatively light in weight. It can therefore be moved by wind or water. Under natural conditions, topsoil is held in place by plant roots and by the litter of leaves and branches which make the upper layer of a forest floor. Roots and litter also protect soil organisms from the direct rays of the sun. Under cultivation, however, these protections are removed. The topsoil, broken up and pulverized by plow, harrow, and cultivator, is at the mercy of the elements. A single wind or rainstorm may strip off enough topsoil to make a piece of land infertile for years to come.

5. The Kingdom of Man

Man is master of the earth, in so far as the earth has a master. In many senses man rules over the earth kingdom.

Man manipulates the inert earth matter, converting clay into pottery, reeds into baskets, trees into utensils, implements and structural forms, sand into glass, ores into metals, which he alloys to suit his purposes.

Man likewise uses vegetables and animals, domesticating them, training them, breeding them, transforming them into forms best adapted to his needs. Man goes a step further and exterminates species which he considers dangerous or which offer him special advantage for food or other uses. Vegetables and animals are to man like clay in the hands of the potter, fibers in the hands of the weaver, or cellulose in the hands of the chemist.

Man has established his ascendency in a third earth field by natural energies—of water, wind, fire, sunlight, steam, electricity, atomic fission. In this process he has turned to wood, coal, natural oils, and the forces present in atomic structure.

These achievements of mankind are due in the first instance to aspiration, imagination, inventiveness, ingenuity, and a restless, insatiable desire to have more, to know more, and to be more, coupled with the capacity to specialize and organize. Creative genius, plus unity of action, plus purpose, plus the will to achieve, plus determination, persistence, and patience have placed man on the earth-power throne which he now occupies.

In one sense, the earth is an experiment station, subdivided into many departments. Man is an experimenter. Within his grasp are vast possibilities, both plus and minus. He may use his position wisely or foolishly, to build and improve or to degrade and destroy. Like any potentate, he may construct or tear down.

6. Natural Capital

Speaking in economic terms, man has acquired control of considerable quantities of consumer goods in natural form—nuts, berries, fruits, shoots, leaves of plants, fish, fowl, flesh. He has also acquired immense stores of capital goods, which may be used to produce both consumer goods and additional forms of capital goods—herbs, wood, minerals, water, and other sources of energy.

Natural stores of both producer goods and consumer goods may be divided into three general classes: those which are irreplaceable, such as metal ores and deposits of coal and petroleum; second, those which are replaceable, such as soil fertility and forests; and third, those which are improvable such as plant and animal species.

Irreplaceable resources should be used with the utmost care and abstemiousness. Metal ores, for example, such as those in the British Isles, have been mined at least since the days of the Phoenicians and the Romans. If carefully conserved, they may serve the needs of present-day man and may be passed on to succeeding generations.

Replaceable and improvable natural resources, such as forests and topsoil, may be increased in magnitude and enhanced in quality so that each succeeding generation of men begins with more and better resources than its forebears. Through invention and discovery man has enlarged the area of utilization by turning to hitherto unused minerals and sources of energy, and by making available, through improved transportation facilities, resources located in parts of the earth difficult of access.

Planet-wide economic co-ordination will provide combinations of natural resources, such as rare metals, which have hitherto been unutilized. Thus industrial communities have been securing tin from Malaya, tungsten from China, cobalt from Africa, nickel from Canada. Brought together in laboratories, smelters, and manufacturing establishments these rare minerals have played an important part in the development of new alloys and technical processes.

Earth resources have been wasted in the past. They are still squandered or destroyed senselessly. Wisely used, they will provide raw materials for uncounted generations of human beings.

CHAPTER 3 Science and Technology

PRINCIPLE 3 *Western man utilizes nature by means of science and technology*

1. Man the Creator

What we have said thus far about man does not distinguish him, except in degree, from other sentient earth dwellers. Beasts, birds, and insects attempt to survive by hustling for food and for protection against the elements; by making provision for their young, and in many cases by storing up reserves of food and constructing adequate shelters, or by migrating in search of food and favorable climatic conditions. Man has gone further than most earth inhabitants in the production and preservation of food, the construction of shelters, and the building of other capital equipment which may be enjoyed by the present generation and passed on for the use of future generations. His success, however, in these directions remains one of degree.

Human beings in general and Western man in particular seem to differ in kind as well as in degree from their fellow earth dwellers in (1) the range and boldness of their imaginations; (2) their ability to think abstractly; (3) their capacity to plan achievement and improvement; (4) the ingenuity and dexterity which they display in meeting new and difficult situations and in transmuting thought into action; (5) their willingness to conform to a customary pattern of conduct and at the same time their facility for breaking with habitual behavior patterns; (6) the effectiveness of their means of communication; and (7) their development of concepts, formulas, implements, utensils, tools, and machines and the use of these devices in converting natural resources into goods and services. Several of these points are not related specifically to economics but are concerned with other fields of human endeavor. They are listed here because they make up a complex of capacities, traits, and conduct patterns which distinguish Western man from nonhuman earth dwellers and also, in many respects, from prescientific and pretechnical humanity.

In terms of this listing man is a creator in the sense that he has utilized his imagination, his power of abstract thought, his purpose to achieve and improve, his ingenuity and dexterity and his capacity for conformity and diversity, his means of communication, and his other technical devices in constructing an intricate, complex social environment which, on the whole, attains the objectives for which it was designed and planned. The social environment is not a perfect instrument, but it is an instrument of immense and cumulative effectiveness.

This chapter will be devoted to a survey, not of the social environment in general, but of those aspects of the social environment which relate to the problems of subsistence. Men and other animals endeavor to survive. They do this by helping themselves to the good things in nature's storehouse. Man alone has developed a theory, a practice, a technique of self-criticism usually called trial and error, into an effective means of modifying the social environment.

2. Science

Science is a purpose, a method, an accumulation, classification, and interpretation of experience, and the conception and planning of those forms of capital equipment necessary to continue inquiry and to take the steps which convert scientific achievements into workable technical forms.

The broadest purpose which science sets itself is the pursuit of truth through inquiry into the past and present working of the universe, including man. Truth, as thus conceived, is synonymous with the functioning of nature (the universe). It may be pursued in abstract fields like mathematics, or in concrete ones like geology and biology. The scientist does not and cannot know this truth in advance. He discovers it, piece by piece, and by putting these pieces together, he and his fellow scientists, working in many places and at different times, construct a mosaic which will explain more and more extensive areas of the universal pattern.

Scientists proceed from the known into the unknown. Their hunches, guesses, and hypotheses are expressed as concepts and then subjected to controlled observation. When sufficient observations have been made, they are generalized, tentatively, into propositions or principles. The principles are subjected to verification. Thus, in the course of time there emerges a body of verified hypotheses or principles and of classified knowledge which open up new fields to man's efforts to understand and utilize nature, and to build and rebuild the social environment.

Scientific inquiry requires implements for its effective prosecution. Hence the laboratories with their specialized equipment and their ingenious devices for weighing, measuring, counting, and otherwise describing the nature of phenomena. The accepted practices of science make up a technique of procedure which is constantly altered as it develops, which is taught to the budding scientist as a body of know-how and as a path to wider knowledge and further inquiry.

The scientist is not an engineer. He does not design machines, much less supervise their production and subsequent function. He does not organize and administer human societies. The scientist deals primarily with theoretical and symbolic relations and adjustments. He poses his problems in mathematical equations, chemical formulas, sociological hypotheses. He presents his findings in tables, sequences, and processes. His concern is chiefly with the "why" and the "how" of getting desired results under particular circumstances. When he crosses this line, separating theory from practice, he finds himself in the field of technology and is primarily interested, not in explanations but in getting concrete results through the merging of theory and practice.

3. Technology

There is no line which separates theory from practice. One phase of human endeavor merges into another. Nevertheless, we agree to call the researcher in a chemical laboratory a scientist and the designer of tools for making automobile parts an industrial engineer or technician.

Behind elaborate twentieth-century technology, there are many steps from simple implements made of stone, bone, or wood and wielded by the hand of man or pulled by some draft animal, through the metal tools used by workers in leather, wood, and stone, to the harnessing of natural energy sources and utilizing them in power-driven machines.

The historical background of technology may be read in terms of a single mechanical field such as the design and construction of rafts, boats, and ships; it may be studied in the smelting, shaping, and alloying of metals, or it may be approached from the standpoint of the power used to operate tools and machines—animal power, wind, water, steam, electricity, atomic fission. Viewed in whatever fashion, the history of technics stretches back to the period, long before the earliest written records, when humans gave rein to their imagination, put two and two together in their minds, placed thumb against forefinger, and began to invent, discover, adapt, improve, and augment the physical aspects of the social environment.

Speaking in economic terms, invention and discovery modified the instruments of production. In the earliest stages men depended almost entirely upon nature, picking and eating the fruits and nuts which they could reach, then using sticks and stones to lengthen the range of their arms. They began by digging for roots and went on to cultivate the soil with implements of wood and bone and stone. Men shaped clay, wove fibers, contrived shelters. From food gatherers, they became domesticators of animals, cultivators, builders of shelters, boats, bridges, roads. Men depended less and less directly upon nature for their food, clothing, and shelter. More and more they intervened with the aid of ideas, know-how implements, tools, and machines until Western man entered the twentieth century with various types of natural energy harnessed to automatic machines, which cut, shaped, sorted, counted, arranged, and packaged their products so long as raw materials were supplied and storage space was found for the output.

Equipped with the automatic machine, men could make practically any material object they desired in almost any quantity. While they could not endow the output with the personality touch of handcraft products, they could attain a high degree of uniformity in size, shape, texture, and color. Humanity had achieved a mastery over the forces and materials of nature which made possible a wide range, in both the quantity and variety of material things.

Hand implements and tools expressed personality—its preferences, aspirations, talents, shortcomings. The implements and hand tools were themselves the result of craftsmanship, and in their turn, they assisted the craftsmen in turning out additional products. Potter's wheel, hand loom, die vat, tannery, carpenter's bench, and smithy offered the possibility of fine or shoddy workmanship, and the pottery, textiles, leather, wood, and metal objects which came from these craft shops told, in unmistakable language, the biographies of their producers. The output was restricted in quantity by the energy-interest-time limitation under which the producers acted. Its quality reached as high as their imagination, technical capacity, and will to create utility and beauty.

Machinery introduced a wholly different element into the picture. Those who designed and controlled the machines were concerned, not primarily with turning out useful and beautiful objects, but with acquiring wealth and power. They were businessmen and politicos, not artists and craftsman, hence their first requirement was quantity rather than quality. Machine output was standardized, precise, interchangeable. Once the machine was set up, it could repeat, semiautomatically, the same set of motions as long as power was supplied and its moving parts continued in their proper mechanical relation to one another. The result was an all-but-limitless volume of standardized, precise, interchangeable machine parts or consumer goods. The mass-production, machine process turned out, indifferently, drill presses, trucks, radio sets, shoes, trinkets, habit-forming drugs, and lethal weapons.

Contrasts between the handcraft process and the machine process are nowhere better expressed than in the development of printing. (1) The hand worker shaping each letter and lovingly illuminating page after page of vellum manuscript, (2) hand typesetter and pressman getting out sheet after sheet, with the binder assembling them and converting them finally into a book, (3) the type-making or lithographing machine, turning out boiler plate, the automatic power presses, the folding and stitching apparatus, printing, sorting, binding, and counting faster than the human hand can operate or the human eye can follow.

Technology has provided the means whereby a given object of fiber, paper, wood, metal, or plastic can be duplicated almost at will and in a quantity determined only by the available supplies of raw materials, machine parts, and power on the one hand, and on the other, the capacity of the market to absorb the output, which may be well designed, useful and showy or shoddy, superfluous, cheap, nasty, destructive.

Mass product will be uniform. It may be useful. It cannot express the personality of the producer, because the producer, a machine, is without personality.

4. Co-ordination

We have discussed some of the physical and mechanical aspects of mass production. We must now deal with some of its social aspects.

The chief social difference betwen handcraft production and machine mass production lies in the degree of specialization. A wagon maker, operating a small shop, was a specialized producer. He, or he and his assistants, performed most or all of the technical operations necessary to convert wood, metal, and paint into a wagon.

By contrast, the machine mass-production truck-manufacturing plant houses hundreds or thousands of specialized jobs, all of which are necessary in the production of trucks. Many of these jobs involve the use of special machines and machine tools. At each job there is at least one human being. The primary tasks of management, in a mass-production unit, are (1) to set up an organization; (2) to design the product; (3) to subdivide the process of production into effective units; (4) to equip each subdivision with the necessary machines and tools; (5) to staff each

subdivision with the requisite personnel; (6) to ensure a steady flow of raw materials; (7) to provide for the transportation of raw and semifinished product from one part of the plant to another; (8) to secure the fuel or power for moving the machinery; (9) to engage an adequate force of supervisors and inspectors; and (10) to co-ordinate these technical factors in a way to ensure an adequate quantity of marketable products. In addition to these technical elements in a machine mass-production enterprise there is the whole field of administration—including policy making, office equipment and organization, financing, accounting, sales, credit, and the like.

Co-ordination involves an arrangement of specialized units in a manner calculated to produce a desired result. If, for example, we are considering auto production, the process of co-ordination is successful only if it results in an engine, a radiator, a battery, or the entire truck, ready for service. The co-ordinated units are both materials and human beings. The process of auto production involves the presence of these materials and human beings in a certain relation to one another. That is, they must maintain their respective positions and continue their specialized functions.

The machine mass-production plant is therefore a mechanism in the same sense that a gas-engine is a mechanism. All of the parts are essential to the common object of the productive process. This applies to the human beings who participate in the productive operation in the same sense that it applies to the raw materials, machines, and power units.

Mass-production workers have a margin of initiative and free choice which is rigidly limited by the nature of the process. This is called "tolerance." In producing a bearing, this tolerance may be one-thousandth of an inch, which is the maximum leeway that the worker is permitted.

The mass-production worker has his work life rigidly blueprinted, specified, and supervised. In addition, he must live a mass life.

One of the characteristic features of our modern technical culture is the depopulation of the countryside and the concentration of people in industrial-commercial cities where every phase of life tends to take on a mass character. Housing, whether in rows of crowded packing-box dwellings or in tiers of cliff apartments, heaps up individuals and families indiscriminately. Busses, street cars, and subways are even less discriminating in their herding and crowding of commuting passengers. Shopping is done in huge market places. Educational institutions vie with others in their capacity to pack large numbers of humans into minimum space. Recreation centers, such as playgrounds, parks, beaches, sport arenas, dance halls, and theaters are filled to overflowing with teeming humanity.

There is nothing selective in these heterogeneous aggregates of human beings. Men pick their friends. In a mass society, however, their associates are picked for them with no more discrimination than is exercised when a bus is filled at the rush hour. In such a situation the individual loses his identity and becomes an indistinguishable unit in an undifferentiated aggregate.

Concentration in large work places and large cities leads to the other phases of mass living. At every turn the mass man encounters regulations, restrictions, prohibitions. As a final indignity, a part of his product is diverted, whether he likes it or not, through a direct income or property tax or indirect sales and excise taxes, to the hiring of policemen who tell him where he may go, what he may do, and with whom he may associate, and to the setting up of a state apparatus with its armed forces into which the individual, during a certain period of his life, is conscripted and regimented.

Co-ordination of the economic processes and the life processes result in mass industry and mass man. They also lead to the mass mind. If the individual is to operate effectively as an indistinguishable unit in an indiscriminate, depersonalized aggregate, he must be conditioned from birth. Without such preparations, the individual would tend to assert his individuality and thus to retard or stop the functioning of the mass mechanism. In order to avoid such an outcome human reactions are trained to accept and follow the pattern of mass life.

Conformity becomes the number-one virtue. The individual is taught to be a "good fellow," a "good sport," a "good citizen." He must learn to play the game of life according to rules which he has had little or no part in making. When he follows the rules, he is rewarded with better living conditions, prestige, and the chance to exercise power over his fellows. If he violates the rules, he is ridiculed, warned, reprimanded, penalized, isolated, and in extreme cases, liquidated.

This process of shaping an individual mind until it is a working part of mass mind is achieved by indoctrination and social pressure in the home, the neighborhood, the school, the church, and the workplace. Modern technology has added to the list of effective pressure devices—the printing press, the camera, the motion picture, radio, television, the mass sale of habit-forming drugs, and a bewildering variety of minor and major gadgets which are lavished upon individuals who go along and withhold from those who dissent.

Co-ordination in the economy followed the development of machinery and the harnessing of mechanical power. Co-ordination in mass living and the regimentation of the mind are technical devices used by seekers after wealth and power. The net result has been an increased effectiveness in subjecting the interests of the many to the ambitions of a talented, power-hungry, unscrupulous minority.

5. Capital Equipment

Technology presupposes the accumulation of capital. Indeed, the technical apparatus is not only an expensive form of capital equipment, but the inventions and discoveries which led to its development were made possible by the education and leisure resulting from capital accumulation.

Differences between pretechnical culture and technical culture are strikingly illustrated by differences in the attitude toward and the accumulation of capital. Capital is that body of wealth which, instead of being consumed for the satisfaction of personal wants, is devoted to the direct or indirect production of goods and services. American Indians had few personal belongings and still fewer capital goods. Simple implements for grinding, weaving, pottery production, agriculture, hunting, and fishing made up the list. By contrast, note the wide variety of equipment which comprises the capital of North Americans at the present moment.

First there are the capital goods of production—the factories, railroads, mines, buildings, machines, agricultural implements and the like which are used directly in converting natural resources and human skills into goods and services. These production goods operate in two principal ways: (1) They turn out producer equipment, such as power machinery, freight cars, and trucks which will be used to produce other goods and services. (2) They turn out food, clothing, and other consumer items which will be used directly in the satisfaction of human wants.

Second, is the capital equipment used for general purposes, of which the public utilities are a good example. Power stations, telephone lines, the post office, and the highways offer services which may be used in further production or for the immediate satisfaction of personal wants.

Third, are the capital goods employed for community maintenance—water mains, sewage disposal, street-cleaning equipment. These capital goods serve the interests of the community as a whole and their benefits go to producer and consumer alike.

Fourth, are the capital goods used for inquiry and experimentation—laboratories, testing machines, specialized libraries. Many of these goods are only remotely related to production on the one hand of the satisfaction of human wants on the other. Yet they are the seedbed in which many of the inventions and discoveries of recent times have been developed.

Fifth, are capital goods used for community improvement. Such are the public libraries, reading rooms, community buildings, health centers, and recreation facilities. A part of the governmental apparatus of every modern city is set up to promote the general welfare.

Sixth, are the capital goods used for imparting general information and for special training. Press, radio, schools, colleges, trade schools, laboratories, libraries, and lecture halls provide the secular side of this training. Churches provide the religious side.

Finally, in this listing of capital equipment, are the immense housing developments of modern cities, with their wide variety of heating, lighting, cooking, refrigerating, cleaning, and entertainment installations. Side by side with these dwelling facilities are the hotels, restaurants, laundries, provision stores, drugstores,

barber shops, clubs, and the like which provide for a great variety of human wants.

These various kinds of capital equipment, added together, make up a large part of the city as we know it and provide the chief physical landmarks which distinguish the industrial-commercial city of the present day from the agricultural village or the camping site of a nomadic tribe.

6. Conscious Planned Improvement

Our discussion of the role played by science and technology in present-day Western economy will not be complete without some comment concerning attitudes toward economics in particular and the life-process in general.

Human beings may take a passive or an active attitude toward life. Passivity accepts. Activity may be directed toward augmentation, modification, or substitution. Men are intimately dependent upon the climate for sunshine, warmth, moisture. They may (1) take the climate resignedly and do nothing about it; (2) study the climatic pattern until they understand it thoroughly; (3) modify their position by clothing, building, heating, lighting; (4) change the climatic pattern. This fourth means of dealing with climate may sound extreme, yet the entire social environment with which men have surrounded themselves has been built up by successive generations for the purpose of modifying nature and cushioning human life against the shocks incident to modifications of nature's multiple processes, transformations, metamorphoses, mutations, and evolutions.

Each generation has added to or subtracted from the sum total of culture traits composing the social environment and has modified, directly or indirectly, the relations between human society and the natural environment. Even climate has been altered by so simple a process as destroying and planting forests and reducing or adding to the area of water exposed to evaporation.

From the moment men became dissatisfied with food gathering—consuming what nature offered them in the form of nuts, fruits, and edible plants—they took up the task of rebuilding the environment by utilizing the possibilities inherent in materials, ingenuity, and capital equipment. Results of these efforts appear in Western man's social environment.

Masters of organized society, with a vested interest in things as they are, including their right to share in the distribution of income without taking part in the processes of production, frequently advocate and practice a passive attitude toward the existing environment. Almost always they recommend acceptance to those upon whose productive effort they live. Hence the widespread fear of innovation and the fierce opposition to change which comes from the holders of special privilege.

Left to themselves, talented, energetic individuals always tend to make changes in their environment by improving their food supply, housing, transport, health, and the general capacity of the environment to satisfy wants. Changes in the environment may result from individual necessity, whim, caprice, desire for improvement, sense of social responsibility, and will-to-power. In the case of will-to-power, invention, discovery, change, improvement, and destruction follow the veins of genius which periodically come to the surface of human life. Except in a frontier community, efforts directed toward changes in the life pattern must make headway against the dead weight of social inertia, the formidable barriers of tradition, custom, and established habits, and the insistent propaganda of those in authority to "let well enough alone." In the face of such opposition, even the strongest and the most resolute tend to question and hesitate.

At the other extreme from the position occupied by defenders of things as they are is laboratory technique, defended ideologically and supported economically by the community. Laboratory technique presupposes the possibility of purposive change. It combines and recombines materials, ingenuity, and imagination, using the implements at hand, and improving them where possible. Its objectives are limited and its efforts are directed toward concrete results such as the provision of an adequate supply of clean water, the prevention of food waste, the alloying of metals in order to obtain some desired quality of strength or durability. Steel mills, the manufacturers of electric equipment, agricultural departments, and the like all have their laboratories in which experiments are made under the direction of qualified technicians.

The results of their researches are used to modify some aspect of the environment, provided the policy makers consider the proposed changes advantageous to their interests.

Thus there has developed institutionalized public and private invention and discovery, directed toward certain goals approved by those in authority. Industrial engineers provide a good small-scale example. A manufacturer desires to enlarge his plant, to reorganize it, to transfer routine operations from men to machines, or to provide himself with the machinery necessary to turn out a new product. If the enterprise desiring to make such changes is a large one, it has competent engineers on its staff. If it is small, it consults an engineering firm. The result is a set of plans, designs, models, blueprints, followed by the building of the new equipment. Invention for the purpose of improvement and replacement thus becomes a science and an art. Improvements and replacements are planned and made as a routine phase of industrial development.

Conscious, planned change is a normal aspect of present-day industrial activity. It is no less prevalent in the shaping of public policy. Increased population, concentrated in cities, has led to the cutting of forests, to soil erosion, to flood damage. Soil conservation and reforestation have therefore become important elements in the domestic policy of local and central governments. Departments and bureaus have been set up to plan and develop drainage and irrigation projects, the relocation of rivers, belts, and blocks of forest. These projects involve staffs of trained men and women, laboratories, the growing and planting of trees, the construction of dams and ditches, and the other activities necessary to carry out reclamation projects. The work of the Tennessee Valley Authority, the Hoover Dam, and the utilization of water from the Colorado River, the Volga River developments, including power, navigation, irrigation, reforestation, and the building of planned cities are all illustrations of conscious, planned modification of a natural or customary setup and the deliberate manipulation of nature forces to serve human purposes.

Another illustration of conscious, planned change is provided by the efforts of national governments to secure themselves against attack, invasion, and spoilation by neighbor nations.

Under the heading of "national defense," present-day nations organize government departments, assemble and train staffs of specialists, conscript man power, carry on research, invent and develop weapons, construct defenses, build ships and planes, and spend large percentages of the national income. The Manhattan Project, which produced the first atom bomb, was a detail in the far-flung defense apparatus of the United States.

Engineering firms, reclamation projects, and defense programs are illustrations of conscious, planned change worked out as a matter of policy by private enterprises and central governments. Irrespective of the purposes which these activities are intended to serve, the means by which they are carried on have been designed by human beings and aimed at particular objectives. Incidentally, like the pyramids in Egypt and Mexico, they may result in the assemblage of great masses of material. More probably, however, they will modify the environment and will train groups of people in new patterns of living.

7. Limitless Possibilities

Mother earth contains immense quantities of material. There are no known limits to human imagination and ingenuity. Nature forces of great potency have been harnessed, and others, still more potent, are available when the techniques of their utilization are sufficiently advanced. So far as the immediate future is concerned, there are no foreseeable limits to the modifications which man may make in his social environment. Such changes include the utilization and modification of nature and improvements in the relations of man to man.

Possibilities are notably great in the field of economics—extraction, fabrication, transport, communication, merchandising, and the apportionment of income. Within the past two centuries man's economic activities have been revolutionized, both technically and sociologically. The tempo of modification has been greater in the latter part of this period than it was in the earlier years. There is every indication that these modifications are continuing, probably at an even higher tempo.

Advances in science lead to innovations in technology. Technological modifications almost inevitably result in transformations of the social environment. While man's yearning to know, his desire to improve and his will-to-power continue to animate his life, the development of science and technology will continue. Effective limitation on such developments will be imposed by man himself.

During previous epochs of civilization the limitations imposed by man upon his efforts to improve the social environment have taken three forms. The first is deliberate physical destruction of natural resources, the waste of materials and labor power through parasitic and vicious life patterns and the heavy losses of wealth and man power incident to economic competition and war.

The second limitation is that arising out of injustice, of which the chief economic expression is "you work, I eat." Military conquest, and subjugation, oppression, and exploitation have enabled one section of the community to live in comfort and often in idleness upon the products turned out by another section. Inequalities in social status are resented by the oppressed and exploited and are perpetuated by regimentation and coercion which still further limit freedom of choice and therefore build up reservoirs of frustration, resentment, and hatred.

The third limitation on the possibility of continuous developments in science and technology and on the progressive improvement of the social environment is imposed by the sense of boredom, despair, and the meaninglessness of life which is felt, sooner or later, by the oppressor and exploiter, as well as by the oppressed and exploited. Indeed, the oppressor and exploiter is likely to get the feeling first, because his quest for wealth and power is so inherently meaningless.

Scientifically and technologically, man may go as far as he wills in modifying the social environment, provided he recognizes and understands the basic principles underlying nature and society, including the economy. His will fails when he violates one of the foundation precepts of social science: subsistence is the result of productive effort. If man ignores or misinterprets basic economic principles, he may upset the nature balance or the social balance. If the disturbance is sufficiently drastic, not only will man's projects be disrupted and disorganized, but h and his may be destroyed.

Science and technology are potent forces. They are likewise neutral. A tool may be converted into a weapon. A machine may be used to build or to tear down. Tools and machines do as they are bid and move as they are directed. Men decide and control

CHAPTER 4 Productive Effort

PRINCIPLE 4 *Subsistence is the result of productive effort, and, increasingly, of group effort*

1. Men Work for a Living

Three factors are present in every productive effort: natural resources, implements, man power. They are present when a hillman picks wild berries into a homemade basket. The three are present in a rolling mill and in a telephone exchange. Men, using tools and machines, convert the gifts of nature into goods and services which help to satisfy human needs and wants.

Men differ in this respect from nest-building animals and insects, like beavers, robins, and ants. Men are the only tool users.

With tools, machines, and techniques men produce a living. They turn soil fertility into food, fibers into clothing, clay and metal into utensils, wood into dwellings and furniture. They utilize natural resources, employ implements, and know how to produce the necessaries and conveniences of life.

Each man need not spin and weave in order to have clothing. The task of making cloth and clothes has been taken over by specialists—spinners, weavers, dyers, tailors, while other specialized tasks such as the provision of food and the construction of dwellings have been undertaken by other craftsmen. Again there are owners of property and holders of power who put forth no productive effort, but live in parasitic idleness upon the products of the labor of others. But unless some humans put forth productive effort, none will be able to eat meals, wear clothes, live in houses, or read books. Productive effort is therefore a prerequisite to subsistence. It may be voluntary or compulsory. It may be pleasant or irksome. Any expenditure of human effort which provides the means of livelihood is productive effort.

What do we mean by productive effort? What is work? How does it differ from play? A cabinetmaker puts forth little physical effort. A tennis player squanders energy, yet the first is "work" and the second is "play." The second is play until the tennis player accepts a salary. Then tennis playing becomes work. Professional gardeners make a living by planting, tending, harvesting. Amateur gardeners spend an equal amount of energy doing the same things. The first man is working. The second is amusing himself or playing. Both gardeners have flowers, fruit, and vegetables to show for their expenditure of energy.

What constitutes a livelihood or living? It is easy to say, "I work for a living." The machinist in the shop, the office secretary, and the president of the concern all use those words, but the living they envisage varies all the way from physical survival, through comfort, convenience, and improvement to power over men. If the machinist who is paid by the hour has a wife and three children and is periodically unemployed because of plant stoppages and sickness, he works for survival. The office secretary, on regular salary, works for survival, plus comfort, convenience, and improvement through saving, investment, study. The president of the concern works for survival and the middle-class amenities, plus power over wealth and the lives of other men. Although there is a wide difference in the meaning of livelihood as expressed in the experience of the machinist, the secretary, and the top executive, all three devote energy, attention, thought, and perhaps a degree of creative imagination to the common productive enterprise. All three work for a living.

As a result of this work, the machinist, the secretary, and the top executive, using the gifts of nature, tools, machines, office equipment, and the techniques of shop and office procedure, secure the goods and services which support them from day to day.

2. The Magic of Specialization

Productive effort, expended in an industrialized community, provides even the survival worker with a large quantity and a great variety of goods and services because it utilizes specialization. Compared with a tent-dwelling herdsman of Iran or a cultivator along the Yellow River, the machinist in Essen or Detroit is offered a bewildering selection of things in exchange for his daily or weekly productive effort, although he works shorter hours and may expend far less energy than the Iranian shepherd or the Chinese land worker. This difference in the quantity and variety of goods and services available to the industrial worker is due largely to specialization in productive effort.

Herdsmen and land workers have special jobs, in the sense that they are not carpenters or tailors. Their specialization stops with their crafts, however. Within their crafts, herdsmen and farmers are general workers. Both are subject to the weather. Both follow the seasons. Both carry out a productive program which varies with each day. A general farmer in New England or New York, before 1850, carried on the rudiments of more than a hundred of the different trades which developed during the subsequent era of industrialization and specialization. Consequently, the unspecialized worker tends to become a jack of all trades and a master of none.

A New Englander who had spent his life on a hill farm was hewing a timber. He summed up the job situation by saying, "By the time we have done anything like this long enough to get the hang of the job, we will be off on something else, and by the time we come back to hewing we'll have forgotten how we did it the last time and will have to learn it all over again." Specialization within a craft or trade avoids this difficulty by giving a worker the same task, day after day, until he can do it quickly, effectively, all but automatically.

The effectiveness of specialization rests back upon differences in human capacities. Physically, emotionally, mentally, and in creativity human beings vary all the way from the zero of idiocy to the infinity of genius. Such differences are more notable in the sciences and arts than they are in physical size or strength or emotional intensity and stability. In music, some are tone deaf; in pictography, some are color blind. Geniuses, on the other hand, have a refined and accurate sense of tone and color. One of the simplest tests of human capacity is provided by a problem involving sorting, classifying, and ordering miscellaneous and apparently unrelated objects or ideas. One mind will go blank when faced with such a task. Another will immediately formulate a mental picture of the way in which the objects or ideas should be arranged. Some people function easily when doing things. Others find themselves more at home dealing with ideas.

Specialized human capacities have led their possessors into specialized phases of the crafts, professions, sciences, and arts. These specialists appear very early in human society as the land worker, the artisan, the merchant, the soldier, the priest, the administrator, the philosopher. They have been given immense scope by the rise of industrial culture.

Mechanized production presupposes a degree of specialization which will permit a machine to perform and repeat an operation or series of operations. A blacksmith, hammering out nails on an anvil followed a rule of thumb and repeated the sequence with each nail, until the procedure had been standardized and had become semiautomatic. At this point a machine was developed which could perform the same series of operations and turn out the product more uniformly and more rapidly than the human eye and hand. With advances in the alloying and tempering of metals, steel dies were produced which could stand the wear of many repititions of the same operation. Equipped with these dies and powered first by steam and later by electricity, the machine, provided with a supply of material and properly supervised and repaired, turned out the vast quantity and variety of specialized, standardized products which are on display today in any hardware or variety store.

An individual, working alone or in a family group, is strictly limited as to the quantity and variety of his product. Consequently, in an agrarian craft economy, where each household is likely to produce much the same objects as the others, both quantity and variety of consumer goods are restricted by the energy of human beings and domesticated animals. An industrial economy, on the other hand, draws upon the energy of wind, water, combustion, electricity, and atomic fission.

In a craft economy, the workman is the unit of measurement—the carpenter, the smith, the tailor, the cobbler. Industrial society has substituted the machine as the measuring unit. One operator may tend a dozen or a score of semiautomatic machines. One machine may perform a dozen or a score of successive operations. A craft was learned through years of apprenticeship. The job of tending a machine may be learned in a day, a week, or a month. Thereafter the operator ceases to experiment or learn and becomes a part of a standardized process.

Mass production, by the repetition of specialized operations, turns out quantities of standardized, interchangeable units which are tested, sorted, inspected, packed, and transported to the assembly line, where they become parts of some larger product. Given an adequate quantity of raw materials, power, machines and transportation facilities, organization, and direction, one city such as Akron or Detroit can turn out tires and trucks in sufficient quantity to supply the national market or even the world market.

Productive effort, brought to a focus in Akron or Detroit, is participated in by human beings, by machines, and by specialized productive enterprises scattered over a wide area. As a result, tens of millions of people have rubber-tired automobiles, whereas a community composed of equally competent craftsmen, working as individuals or in household units, giving an equal amount of time and energy, could not turn out such quantities of intricate and specialized products.

Subsistence, in an industrial culture, is the result of specialized, co-ordinated human effort, utilizing mechanically powered equipment. Through these means the entire group participates in the production of group subsistence. Group participation, in both production and consumption, is evident enough in the case of complicated mechanical gadgets such as electric irons, newspapers, and bus transportation. The materials entering into the production of electric irons, newspapers, and busses are assembled from many sources, and the irons, papers, and busses are widely used by members of the community.

Even more notable is the dependence of the old crafts upon mass production. Take carpenters as an illustration. Before the days of power industry a carpenter with a few simple tools built a house, using wooden pins for the frame and lumber from the local mill. Today the hardware alone which goes into home building comes from a variety of industries, while the plumbing, electric wiring and fixtures, heating, insulating, and other specialties are turned out by groups of industries which were unknown to our grandfathers.

Productive effort in an industrialized economy is a network of interrelationships, which includes a wide variety of far-scattered units and strands. Essentially, it is group effort. Likewise the results of this community effort are shared by many members of the group in which the effort is being made. This generalization holds for objects such as electric irons, newspapers, and busses. It holds even more definitely for the electric grid which powers the electric iron, the news-gathering agencies which serve the newspapers, and the transportation provided by the busses. Electric energy, news, and transportation are services resulting from group effort and are available to all members of the community.

Industrial cities tend more and more to supplement the available supply of goods with a supply of services—water, sewage, transport, light and power, telephone, fire protection, health, education, recreation—which never were and never could be "individual," but are, by their very nature, communal in character.

This trend away from goods which are essentially individual to services which are essentially social has been accompanied by an enlargement of the geographical area within which the goods and services are made available. The area of economic function has broadened from the household and the village to the city and the nation. The national economy of the United States is more interdependent today than were the economies of New England towns two centuries ago. The towns were aggregates of independent crafts and trades, loosely bound together. United States economy is an integrated network of interdependent economic units.

Economic integrative forces which have co-ordinated the economies of widely extended national areas are likewise developing a planet-wide network of interrelated economic units and functions. While world economic co-ordination is still in a formative stage, there is every reason to suppose that, barring war destruction, tomorrow's planetary economy will be as closely coordinated as today's national economy.

3. The Industrialized Productive Process

Productive effort in an industrialized community is group effort. At the same time it is highly specialized. The United States Census Bureau lists professional and semiprofessional workers, farmers and farm managers, proprietors, managers and officials, clerical and kindred workers, salesmen and saleswomen, craftsmen, foremen and kindred workers, operatives and kindred workers, domestic service workers, service workers, farm laborers and foremen, and laborers.

Within one general occupational area, such as manufacturing, there are major divisions: food, tobacco, textiles, apparel, lumber, paper, printing, chemicals, petroleum, rubber, leather, stone, iron and steel, nonferrous metals, machinery, and transportation equipment. These major divisions of manufacturing are again subdivided. Transportation equipment breaks down, for example, into aircraft and parts, automobiles and their equipment, ship and boat building and repairing, and railroad and miscellaneous transportation equipment. Each of these subdivisions is again subdivided until the specialized phases of productive effort are numbered, literally, in the thousands.

Productive effort in the United States differs in no essential respect from that in Great Britain, Germany, or the Soviet Union. Its manifold forms are the result of the complex nature of an industrial economy.

4. Systematization and Standardization

Complicated mechanisms such as a gas engine, a mechanical stoker, or a bicycle could not be mass produced and mass marketed in the absence of a high degree of standardization of models, of processes, and of parts. Individually produced by skilled craftsmen, gas engines, power stokers, and bicycles would be luxury items available only to the very rich and the very powerful. Mass produced, they become a commonplace in moderately well-to-do families. Technological advancement and co-ordination alone are not responsible for the mass production and mass marketing of consumer capital goods. The individual adult members of the community must make a standardized contribution to the group effort.

Power-driven machines are effective when every part is in its proper place, performing its proper function. A community operating a mass production economy is effective when every job is staffed by a worker or by workers who are in their proper places and performing their proper functions. Such a result involves a degree of regimentation which is inconceivable on a preindustrial farm or in a preindustrial workshop.

Farmers and craft workers begin and end work at their own discretion. They also set their own work pace. The mass production economy is geared, not to human wish or will, but to the industrial mechanism which is designed to turn out so many units of product per hour or per day. If one department of the mechanism falls behind, the entire apparatus is disorganized. Raw materials and power must be delivered. Each individual operation must be performed and all must be exactly timed if the final product is to come off from the assembly line on schedule. Consequently the life of the entire industrial community must be minutely regimented.

Busses and trains must move on time. Food supplies must be regularly delivered. Meals must be ready at certain hours. The number of work hours per day and per week must be prescribed. From households to steel mills and oil refineries, life is lived on a rigid time scale which makes the holder of the specialized job one unit in an aggregate productive effort which includes tens of millions of men and women.

Industrial workers are limited by space as well as by time. They must be punctual and must be on the job. Elsewhere they are as useless to the total productive effort as though they were nonexistent.

Conformity to such arbitrary time and space limitations requires a long and careful conditioning which is provided chiefly through compulsory education. All children of certain ages must be in their places in school at certain hours. They must adapt themselves to the school routine at the same time that they adjust themselves to the school environment. A hundred or a thousand children are herded into a school building by teachers and principals as a hundred or a thousand soldiers are herded into companies and regiments by captains and colonels. Most school children in the first seven or eight years of their school lives learn to read poorly, to write badly, and to do the simplest operations with whole numbers, but such matters are of secondary importance. The main thing is that they learn to conform. They wear the group harness and like it. They follow the group pattern and feel at home in it. The same hundred or thousand, transferred from school routine to factory routine, will be able and even willing to become small cogs in a big industrial mechanism because they have already acquired the habit in a big educational mechanism.

Science and technology design and build the industrial mechanism within which mass productive effort will yield quantitative results. Educational institutions build the habits of bodily posture, feeling, and thinking. The productive apparatus absorbs the individual man or woman, who is vocationally and socially conditioned to put the best hours of the best days and best years of his adult life into regular and loyal conformity to the pulse beat of the whole economy.

5. Results of Collective Productive Effort

Collective productive effort has given a demonstration of its possibilities during the past five centuries. Against the background of extreme local self-sufficiency and the absence of specialization and trade which characterized the Europe of the Middle Ages and the tribal economy of Indians in eastern North America, the expansion of European culture has been marked by more intense specialization over an ever widening geographical area, coupled with the growth of science and technology. The resulting industrialized, planet-wide economy has provided:

1. A network of productive equipment, powered by nature forces. Little of this equipment was in existence before A.D. 1815. Much of it, particularly that associated with electricity, the internal combustion engine and atomic fission, has been developed during the present century. The power tools of manufacturing, transportation, construction, and agriculture have made possible the increased volume of output characteristic of specialized, mechanized, semiautomatic mass production.

Industrial communities accumulate property in five chief forms: (1) households and their equipment; (2) means of transportation (including ships, harbors, railroads, motor vehicles, streets, and highways); (3) social services, of which the most elaborate is educational facilities; (4) productive plants, of which factories, railroads, administration buildings are the best examples; and (5) power tools. Household equipment, means of transportation, social services, and work places were consequential items in the cultural setup of preindustrial man. Power tools, their design, construction, modification, and employment in the productive processes, together with the mechanical power necessary to operate them, constitute the distinctive contribution of industrialized society.

2. Mass consumption has developed side by side with mass production. Unless there were some means of removing the product, the average semiautomatic machine would soon bury itself under its own output. The transfer of the product from producer to consumer is therefore a prerequisite to the continuance of production. The two processes, production and transfer of the product to consumers or to warehouses, must proceed at the same time and in approximately equal volume, otherwise a glut of products is inevitable. Industrial communities have therefore been compelled to develop, on the one hand, facilities for assembling, storing and displaying the output of power tools and machines, and on the other hand advertising and sales techniques in sufficient volume to induce consumers to buy the mass product.

Merchandising techniques have proved more difficult to construct than production techniques. While production deals largely with the conversion of the products of nature into consumable forms, the building of an expanding market depends upon the modification of established habit patterns and the formulation of new consumer habits.

Furthermore, the industrial communities which were in existence up to very recent years all relied upon the wage-profit method of distributing income. Under a wage-profit distribution pattern the workers can never buy back the total of their product. Nor can reinvestment by the profit takers absorb all of the margin between money wages paid and the money value of goods and services on the market. Consequently, every industrial community operating on the wage-profit formula has experienced periodic accumulations of unmarketable goods and investment-seeking capital, necessitating a slowdown or depression in the productive process, a decrease in wage and profit payments, and a further decrease in demand for goods and services. Economic stagnation, with all of its undesirable consequences to individuals and to social groupings, has led industrial communities to develop agencies of waste and destruction as the readiest means of disposing the economic surplus and preserving prosperity.

3. Wholesale waste and organized destruction are tolerated throughout Western civilization. Looked at from the long perspective, waste and destruction are tragic. From the short point of view, however, they are necessary accompaniments of profit economy.

Waste takes many forms. The most obvious is that connected with personal consumption. Food is wasted in its preparation, and in the higher income brackets is generally wasted in overeating, particularly by adults. Food processing and packaging are wasteful of time and materials. Elaborate cooking is unnecessary and therefore wasteful. So are the consumption of tobacco, coffee, and tea. Alcohol drinking is largely waste. Well-to-do people waste clothing, furniture, fixtures, first by having around more than they require for efficiency or for aesthetic reasons, and second by changing styles, shapes, and patterns.

During periods of glut, food in particular is often wasted. Fruit and vegetables are deliberately allowed to rot or are rendered inedible by treatment with kerosene or some other deterrent. The United States New Deal, during the thirties, adopted waste as an official government policy, buying up surpluses of food and raw materials and destroying them in order to maintain prices on the remainder. Brazil followed such practices with an official policy of coffee burning and dumping.

Industry wastes by putting time and money into the production of inferior materials and by marketing output which cannot last, and which therefore must be speedily replaced. Instead of trying for output which will be durable and beautiful, profit-seeking industry aims at output which will wear out and be replaced at the earliest possible moment.

Natural resources are wasted. Forests are burned to make way for agriculture. Wood pulp and other materials are wasted in competitive advertising. Minerals are wasted in unnecessary lighting and heating. Metals are converted into gadgets which are neither useful nor beautiful. Topsoil is wasted by overcropping, by erosion, by neglect.

Most spectacular is the waste incident to military spending. Governments maintain departments dedicated to waste. Research laboratories plan new destructives. Schools train pupils in the science and art of destruction. Training, games, and maneuvers provide the requisite efficiency in destroying property and life. Periodically, men and materials are assembled, the latest destructive agencies are brought out of their hiding places, people are whipped up to a frenzy of fear, hate, and patriotic ardor and are then led onto the battlefield for an orgy of destruction for which governments have spent decades in methodical preparation. During the first half of the present century, the wealthiest governments of the industrialized West have spent more for military purposes than for all other objects of government spending combined. Furthermore, the Western nations have devoted more time, energy, and thought to military preparations and war making than to any other single object of government activity.

Collective productive effort has therefore been matched against collective destructive effort, with the tools of one converted into the weapons of the other. Ruins in war-harried Europe suggest that collective destructivity has proved more effective than collective productivity. In many cases, the results of years of labor were wiped out in a few hours of purposive destruction.

4. Productive, collective effort has resulted in an expanding pattern of widely available economic services such as paved highways, electric energy, postal facilities, and telephones. Preindustrial society lacked the economic surplus, the technical facilities,

and the technicians needed for such developments. Industrialization provided all three.

5. Productive collective effort has made it possible for industrialized communities to supplement a broadening range of economic services by a parallel range of social services, which are likewise available to broad sectors of the community. These services include schools, clinics, libraries, museums, concerts, excursions, recreation facilities. Preindustrial society was able to offer economic and social services of this nature to a tiny fraction of the population. The wealth and leisure provided by industrialization has increased the proportion of the community to which they are available.

Science and technology have put into the hands of industrial man increased production facilities. In exchange for an hour of his labor time, the user of these facilities can convert a larger volume of natural resources into a greater quantity and variety of goods and services and offer them to a wider range of people. Production does not stand alone, however. The same equipment which produces today, realigned and redirected, can destroy tomorrow. The ratio of destructivity to productivity has increased with advances in science and technology.

Collective economic effort, coupled with collective social effort have transformed the social environment. Modern man like his primitive forerunners, has tried to cushion his contacts with nature by cultivating and storing food, building shelters, moving from place to place, searching and researching for means to meet his requirements. Industrialization has raised the potential of human control over nature and over a growing, widening community of human beings.

Collective effort has proved effective in increasing the facility with which man converts nature to meet his needs, thereby giving a greater quantity and variety of goods and services and making available the decencies and superfluities of life to a larger proportion of an increasing population. Augmented production has necessitated heavier drafts on natural resources, has created surpluses embarrassing to a scarcity economy, and has increased the destruction potential. On one side man has gained confidence in his capacity to master the material world. On the other side he has approached the abyss of self-annihilation.

6. The Price of Increased Productivity

Increased productivity, like every change in man's life pattern, is bought at a price. In this case, the price includes the more rapid and wasteful exhaustion of natural resources, the regimentation of the individual, the menace of high-powered destructivity, and a thoroughgoing preoccupation with comfort, convenience, and an increasing multiplicity of more and more complicated gadgets.

Three justifications are advanced for man's submergence of individuality in the totality of mass-productive effort. The first is the familiar mess-of-pottage argument that the loyal conformist will be supplied with more necessaries, conveniences, comforts, diversions, and allurements than the heart can desire. There can be no two opinions concerning the validity of this promise. Mass productive effort delivered more things during the first half of the present century than the eighteenth century man dreamed of.

Second, the participant in mass-productive effort is promised that he can provide for his children and grandchildren an increasing quantity and variety of goods and services. This long term perspective proved valid for the three generations which began with A.D. 1815. The generation which began with 1915 faced a pattern which included the disturbing irregularity of productive effort known as the business cycle, raised to such levels of intensity that during the depression of the thirties, tens of millions throughout the industrialized West found themselves without jobs or incomes. No matter how loyal they were to free enterprise, the productive process was operating at so low a level that there was a shortage of jobs. On the political side of the picture, tens of millions were mobilized, trained, supplied with weapons and set to destroy the property and the lives of their neighbors. Preparedness and war inaugurated a policy of directing productive effort toward destruction and murder. For many individuals and families the gains due to mass productive effort were rubbed out by depression and war. The social pattern which

had provided an abundance of goods and services during the short run, reversed itself by providing destruction, destitution, and death in the long run.

Third, among the justifications for individual surrender to the mass community was the promise of a paternalistic or welfare state which would guarantee to the individual freedom from responsibility for decisions and from the results of his actions. The promise, as usually made, placed a period after the word freedom in the previous sentence. The state guaranteed individual freedom. The citizen must work a certain number of hours or own an amount of property which, at the going rate of interest would yield a satisfactory income. Beyond that there was a state insurance against accident, sickness, unemployment, old age. The individual might play cards or go to the circus in his spare time. He could depend upon the state to look out for his interests.

Politically, this third justification for individual participation in mass-productive effort secured mass support for clever and persuasive salesmen like Roosevelt and Hitler. It was subject to three limitations, however. The first of them was the steep increase in overhead costs, which were met by currency inflation and borrowing. There is no known way to take more beans out of a pot than are put into it. Nor have the political chemists yet devised a formula for turning guns into butter. The second limitation was the corruption potential implicit in the exercise of power. Also, there was no way to be sure that those who had freed themselves from the responsibility of making decisions on public policy could escape Captain John Smith's aphorism: "If you would have a thing well done, do it yourself." The third limitation was even more drastic. It was far from certain that the provision of necessaries, conveniences, and comforts in exchange for a specified period of subservience to a mass machine would make the participants either satisfied or happy.

7. Limitations on Productivity

There are two limitations on increased productivity. The first is the available volume of natural resources. The second is man's consumer interest. There seems to be no limit to human ingenuity and inventiveness in providing the tools and machines with which output is maintained and increased.

Nature's storehouse is still well supplied. If one irreplaceable resource such as petroleum, is exhausted, a substitute will be found or will be invented and manufactured. Denuded hills usually can be reforested. Productivity of exhausted topsoil can be raised to a level far above its primitive condition. Swamps can be drained. Dry lands can be irrigated. Plant and animal varieties can be developed for particular purposes. Water, air, sunshine, atomic fission, atomic fusion, and electric and magnetic energy can be directed toward the satisfaction of human needs and wants. Nature is not limitless but the existing supply of natural resources will take care of requirements for a long time to come.

The real limitation on productive effort lies in man's interest in the output, in his unwillingness to pay the price in effort and in regimentation which increased output demands, and in his reluctance to make adjustments to social institutions and practices which are necessitated by the advances in technology. Productivity is not an end in itself. Rather it is a means to the good life. This holds true for all aspects of the social environment. On no other basis can productivity be justified. Productivity and social change may lead toward the good life or may be made a part of it, but they are not among its indispensable ingredients.

CHAPTER 5 Income

PRINCIPLE 5 *Subsistence should be apportioned according to need*

1. Income Is the Available Supply of Usables

Man's subsistence comes originally from nature. It is produced by human effort with the aid of science and technology. As a consequence of the conjunction of natural resources, implements and human energy, there is available a supply of goods and services ready for use.

Primitive economies established a direct relation between producer and user. The berrypicker ate his berries. The hunter lived on his game. The herdsman used the milk from his cattle or goats.

Industrial economy presents a different picture. The farmer produces more fruit or grain than he and his dependents can consume. The miner of coal does likewise. Metal miners and steel-mill operatives do not consume their product at all. It goes into boilers to generate power or into machines which are employed in the productive process. Research chemists and accountants play a necessary part in industrial economy, yet they do not turn out any consumable product. Grain farmers, miners, factory employees, scientists, and technicians require food, clothing, shelter, and other items which make up their subsistence. An industrial economy therefore maintains assembly points or merchandising establishments at which the available goods and services are displayed and from which they may be procured. Assembling and disbursing goods and services is one of the essential features of an industrial economy. Merchandising or marketing brings together the various items which comprise subsistence.

Merchandising was conducted originally by means of barter; a pair of sandals exchanged for a water jug. Later, money was used as a common measure of value for the exchange of both sandals and water jug. A collective economy, with a surplus of goods and services, supplies the needs of its participants from the stocks available at the merchandising centers.

Barter, money economy, and the distribution of the common stocks of goods and services in accordance with need are various ways of disbursing income. While they are not wholly sequential, they have been employed in relation to scarcity and abundance. Barter economies have prevailed where goods were scarce. As goods became more plentiful, their exchange was effected through a money economy. Abundant goods and free goods are apportioned according to need.

Individuals are not the only users of goods and services. Groups are likewise consumers. Under the social pattern of the industrialized nations, the household is the chief consumer. In the household, housing, furnishing, fuel, and food are provided for the entire group and consumed by the group. Only clothing and minor gadgets are considered individual property and consumed by the individual as such.

There are other important group consumers beside the household. Private associations such as trade-unions, social clubs and restaurant chains own or rent buildings, furnish and equip them, give entertainments, and serve meals. In order to offer these facilities to their members or patrons, they must secure the necessary building supplies, furniture, fixtures, utensils, and food. Public bodies offer their constituencies a variety of economic, educational, health, recreational, and other services. The town which aims to have a seat in school for every child must secure and equip a building and furnish it with paper, books, maps, laboratory utensils. Libraries, museums, and hospitals have parallel requirements.

In an industrial community with a considerable part of the population living in cities and towns, group users of consumer goods are an important factor in the economy. There are no

records of the proportion of consumer goods which go to private associations in an industrialized area like that surrounding New York or Chicago. But some idea of the extent to which public bodies participate as consumers in the economy appears in tax reports. In the United States, at the present time, between one fifth and one quarter of the total national income goes for taxes. In a year like 1950 this would mean about sixty billion dollars. Part of the public expenditures are paid out as wages and salaries rather than for consumer goods, but village, town, city, county, state, and federal governments do spend large sums in providing their various departments with building supplies, furniture, fixtures, and food.

Expendable income is the supply of usable goods and services reaching the consumer. The supply may go to an individual, a household, a private association, or a public body. The sum total of goods and services which goes to consumers in a given period of time is referred to as expendable or consumable income.

Income, therefore, is not money. Money cannot be used to house, equip, clothe, feed, or provide for any of the wants and needs of individuals and social groups. Money is merely the measure and medium employed to facilitate the transfer of goods and services from producers to consumers. It is the movement or flow of goods and services which is important, and their movement may be effected by requisitions, as it is in a school system or in an army post, without the intervention of money.

2. Industrial Production and Consumption Are Impersonal

Despite talk about individual rights and individual choices, the economy of an industrial community tends to be impersonal. This statement holds for consumption as well as for production.

Our description of production, in the previous chapter, laid emphasis upon the essentially impersonal nature of the industrial productive process. Production is equally impersonal in its relation to the consumer, even in those industries which cater directly to personal needs and wants. Women in a cannery that packs tomatoes cannot say, at the end of the day's work: "This is my can, because I packed it." Not only is the individual worker occupied in one phase of a unified productive process, but the cans go to the warehouse looking so much alike that it is impossible to distinguish one from the other. Packaged food is impersonal, as regards both producers and consumers. The same thing is true of washing machines, kitchen sinks, and other consumer capital goods. It is even more evident in that important segment of economy which produces raw materials, such as copper and aluminum, or turns out lathes and presses, or provides power and transportation. In these latter industries, the worker in the steel mill or in the power plant has not direct connection with the consumer.

Hand craftsmen, in a use economy, consume many of the products which they themselves produce. In an industrial economy, on the other hand, the goods which go from producer to consumer by way of the market are standardized and duplicated in large numbers by machines, workers, and directors who do not expect to consume what they produce and whose object is quite impersonal in so far as the consumers of their products are concerned. Topcoats like corn flakes and washing machines are not tailored to measure and fancy. Rather they are produced to a standard pattern. Then, through sales departments, consumers are persuaded to adjust their wants to that standard.

Goods and services in an industrialized economy are produced in the mass and go impersonally from the productive process to the consumer. The goods turned out by the productive process, designed and styled for a general market, cannot take the individual consumer into account, beyond the variation in patterns, colors, and sizes which are found in packaged foods, ready-made clothing, and furniture. Instead of power-age output being shaped so as to meet the idiosyncrasies of consumers, it is the consumer who must alter his habits to fit in with designs, patterns, and styles established by the power-age producer. "The consumer is always right—after we have persuaded him to like and accept our line of goods and services."

As an industrial economy becomes more extensive geographically, more complex organizationally, and more concentrated managerially, its output of consumer goods becomes less personal

and more generalized. Thus, even in the case of goods such as food, clothing, and trinkets of an essentially personal nature, industrialization introduces a note of impersonality which tends to submerge the consumer under the broad aspects of a mass-production economy. As the complexity of the economy increases, the individual consumer becomes more and more an impersonal type to whom the mass production output can be sold by high-pressure advertising and salesmanship.

3. Group Service Income

Industrialization, served by science and technology, has added a variety of group services to those which were available to consumers in a preindustrial age. Such services are available chiefly in the urban centers of industry and commerce. Perhaps the best example of these new consumer services is a graded, drained, paved, lighted, cleaned street, provided with curbs, sidewalks, street signs, transportation facilities, traffic lights, and often planted with shade trees and shrubs and flower gardens.

Preindustrial, precommercial communities had few cities. Their people were grouped in villages and small towns through which there were passageways—ungraded, undrained, unpaved, without curbs or sidewalks. Refuse was dumped from the houses into the streets and picked up by human and animal scavengers. In wet weather the streets were mudholes. In dry weather dust clouds rose from them. Foot pasengers, horsemen, and vehicles disputed the right of way with wandering domestic animals and children. In Medieval Europe and over large sections of the nonindustrial world during recent times such streets were widely typical. Capital cities and walled towns presented exceptions.

With commerce came the commercial city and with industry came the industrial city. Both types of cities provided street facilities for their citizens. First the city was laid out or planned, as Alexander planned Alexandria or William Penn planned Philadelphia. If an old town stood in the way of a new city, as prerevolutionary Paris lay in the way of modern Paris, it was pulled down or remodeled to provide for broad, straight streets and avenues in which the services characteristic of the modern city could be made available.

Modern city streets are divided into two areas—the part which is above ground level and the part which is below ground level. In large cities, the area below street level is frequently the more complicated of the two because, in addition to water mains, sewers, conduits for gas, electricity, and telephones, it must often house subways and other facilities.

City streets are designed, built, and equipped to provide for the movement of vehicles and pedestrians; to furnish such indispensable services as water, light, power, communication, and transportation facilities; to enable merchants to assemble, display, sell, and deliver their wares, and to add a touch of color and excitement to the formal layout of streets and street intersections.

Three propositions underlie the street services which are provided for city dwellers. The first is that the city rather than the individual or the household is the logical unit within which the services can be administered, because the city is the area within which the community carries on its major functions. The second proposition is that the service is more effective where the households comprising the city co-operate in providing common requirements which would be less effectively furnished if each household tried to provide them separately. The third proposition is that the services should be available in accordance with need. The third or need principle has been made applicable even under a profit economy in the facilities for movement offered by city thoroughfares.

4. Group Income and Need

Thus far we have confined our discussion of group-service income to the one item of city thoroughfares. The principle is also applicable to (1) sanitary services such as those involved in the removal and disposal of waste; (2) health services like the provision of a water supply, the inspection of food, facilities for first aid, hospitalization, and sanitarium treatment; (3) public utilities: streets, bridges, sidewalks, gas, electricity, telephone, the transportation of passengers and goods; (4) educational facilities, including schools, libraries, museums, concert halls; (5) recreation facilities like playgrounds, parks, sport fields, social centers; and (6) protection against fire, and the maintenance of public order.

Most of these services are free (sidewalks, parks) or they involve more or less nominal payments (city water, the post) which are service charges and do not cover capital costs, replacements, or even the ordinary overhead. At least in theory these services are available to all citizens on the same terms, although in practice the rich, the prominent, and the powerful are likely to receive a disproportionate share of benefit from group services.

With the growth of the city in size and in wealth and with advances in the science of social engineering, the number and variety of group services has tended to increase in the direction of a social-service municipality or state, one of whose main functions is the provision of group services. The development of city housing is a good illustration of the procedure. It is comparatively easy for a village dweller to erect a shelter for his family. It is difficult for a city dweller to secure the materials and find the time to build a house which will conform to the standards of safety and beauty set up by the city authorities. The consequence, especially in large cities, has been a few single dwellings, professionally built, which were so expensive that only the rich and powerful could afford them, and many multiple dwellings which tend to become standardized, slum properties. Under these circumstances most single families could not afford the capital outlay needed to own a dwelling place and the poorer families paid an unduly large proportion of their income for rent. Health-department and fire-department regulations provided minimum protection, but no satisfactory adjustment was made until the city (or state) raised the necessary funds, rebuilt the dwellings, and rented them out at a price which included only upkeep. Capital outlay and depreciation were covered by the public authority. Thus the major costs of housing were shifted from the individual householder and the private landlord to the public-housing authority.

The multiplication of group services which accompanied industrialization and the growth in the size and complexity of urban centers increased the proportion of group service in the income of a city dweller. At the same time, the proportion of individual income declined so that the ordinary family lived to a decreasing extent on individual income and increasingly on group income.

Group income may be shared among the members of the group in several ways:

1. It may be shared equally—each recipient receiving an exact mathematical proportion of the whole, so that if there are one hundred members of the community, each member will receive the same amount of educational opportunity, of health service, of transportation, and of recreation as every other person.

2. It may be shared in proportion to wealth, influence, and power, in which case those who already have the most will get the most.

3. It may be shared in proportion to need. In this case, those members of the community who require special educational, health, or recreational facilities will receive them from the community, without any reference to the amounts of income going to other citizens.

Equal shares of group income would be easily apportioned among those entitled to receive them if the things to be divided were quantitively separable, like wheat or coal or cotton cloth, into bushels, tons, and yards. But education, provision for health, transportation, and similar services are no more separable than sunshine or fresh air. In fact they cannot be discussed in terms of quantity. They must be considered in relation to the needs of the recipients.

Sharing in accordance with wealth, prestige, and power is a second possibility. The advocates of this method for apportioning group income state their case in terms of custom and of incentive. Time out of mind, group services have gone, in the main, to those who had the money and power to command them. The rich had first choice. Well-to-do people came next. The poor had the leftovers. Nature follows this pattern in dividing nutrition among forest trees. Man has followed it in dividing economic and social opportunities among members of an acquisitive community. If there was equality anywhere, it was in opportunity.

The good things of life went to those who were in a position to secure them.

Such a method of income division has been advocated and defended chiefly because it provided an incentive for those who have special abilities to exert themselves to the utmost in making their talents available to the group as a whole. According to this theory, the members of a human community will exert themselves chiefly because they receive special material rewards.

Communities beset by acute scarcity may have required special incentive to stimulate the requisite activity on the part of their talented members. Industrialization has replaced scarcity by potential abundance. The urgent requirement in industrialized societies is not the stimulation of personal initiative, but a formula under which the increasing volume of group income can be divided up justly among its recipients. Theoretically and in practice the basis for such a formula seems to be need.

5. The Determination of Need

Industrial communities devote a large part of their economic effort to producing group income and allocating a share to individuals and to local groups in accordance with their needs. In order to carry out such a program, the community requires a measure for determining the scope of individual and local needs.

Need, in terms of the present study, may be described as that quantity of goods and services which is required (a) to maintain the health of the individual and preserve his sense of decency and self-respect, and (b) to provide for his development and make for his maximum social usefulness. Shortly, need is measured in terms of health, growth, decency, and social usefulness. Under this definition of need, a budget of necessaries varies from place to place, and from one level of social evolution to another. Need is a social norm which the community attempts to establish and maintain, very much as the city authorities attempt to provide paved, cleaned, lighted streets.

Is the term "need" still too vague? Is it any more vague than "national interest" or "general welfare"? "Need" may be made specific for a particular individual or situation. Otherwise it must remain a framework within which the requirements of individuals and social groups may be met.

Clear thinking distinguishes between need and want. Need can be made specific by the physiologist and the sociologist in terms of individual health or social usefulness. Want, on the other hand, is desire, directed by the individual toward a range of goods and services. A hungry man needs food. His hunger may be satisfied by whole-grain bread and water. However, he wants soup, salad, meat, vegetables, pastry, spices, condiments, and rare wine. A dweller in the temperate zone needs a shelter against winter cold. He wants a house with half a dozen rooms, furnished with gadgets, littered with bric-a-brac and decorated in bright or pastel shades. Need may be defined with some accuracy. Wants are as limitless as man's urges, desires, ambitions, and aspirations.

Individuals have wants, which may be innate, as in the case of food and shelter, or acquired under the pressure of propaganda (advertising). A well-administered community should have little difficulty in determining individual and group needs. With equal facility, through the media of communication, it should be able to direct individual and group wants.

Several limitations circumscribe the social group in its efforts to meet needs. The first and most drastic limitation is the total volume of income available in the given community. The amount may, of course, be increased or decreased in the future, but at any moment there is a definite amount of goods and services which may be apportioned as income. Industrialization has augmented both the quantity and variety of consumable goods and services, yet a highly productive industrial community, like an agricultural community on a lower productive level, is limited to the total amount of available income.

Should a community consume more than it produces, it will first exhaust its surpluses, then eat up its capital, and progressively reduce its capacity to produce consumer goods. Thus the necessity of preserving economic solvency is the second limitation on the determination of need.

Third is the limitation on consumption imposed by the conversion of a part of the group income into capital forms. Road and bridge building, factory construction and the production of

housing absorb a portion of the available supply of goods and services, and remove them from the possibility of immediate consumption. The same holds true for income allocated to nonproductive uses such as arms manufacture.

A fourth limitation is the level of income in surrounding groups. Inequality in group standards of living tempts the lower standard group to enrich itself at the expense of the higher standard group.

Finally, there is the problem of determining the economic conditions under which individuals are most likely to mature and live rounded, rewarding lives. Once this level of individual and social efficiency is fixed, readjustments should be made in community organization which will supply an income adequate to meet the determined need level.

The determination of need is an urgent problem in social engineering. When need levels have been fixed, a goal for productive effort has been set and a minimum for income distribution has been established.

6. Individual Income and Social Increment

From this analysis it must be clear that a considerable part of the income in an industrialized community is social in its origin as well as in its form. We have seen that as industrialization and urbanization progress, the form of income tends to become less individual and more social. The same thing holds regarding the origin of income. Henry George emphasized the social origin of increased land prices. His argument applies with equal validity to other aspects of group income. It is the presence of the community, its activities, and its growth which make possible the group services discussed in a previous section. Each member of the community adds something to the whole, but he makes the contribution, not primarily because he is an individual, but because he is a functioning member of the group.

The respective roles of the individual and the group may be observed in the internal life of a well-knit family, each member of which plays a specialized part. The net result is a household that yields a maximum of satisfactions to all of its members. No one could do for himself what the group as a whole does for him. This is the distinctive contribution of group life to each of its members. The principle applies also to the results of co-ordination and co-operation in larger social units.

Those who argue that each wageworker should receive the full product of his labor overlook the small part which the individual plays in producing the income of an industrialized, urbanized community. They cannot divide the total national product by the total number of workers and get a figure representing the contribution of the individual as an individual. Rather they must begin by subtracting from the total national product those portions which are due to the efforts of the group as a whole. Only the remainder can be attributed to the efforts of individuals.

7. World Income

Since the time of Adam Smith, economists have concentrated their attention upon the wealth of nations. Emphasis on national wealth and income is understandable in an era when nations were being established and were attempting to survive in a highly competitive world. Recently economic functions have developed an international (world-wide) rather than nationwide scope. Consequently, the factors which led eighteenth-century economists to lay stress upon national wealth and income compels twentieth-century economists to emphasize world wealth and income.

Economically speaking, the rise of modern technology has unified the planet into one community. (1) Food is shipped from specialized food-producing areas such as Australia, Argentina, the United States, and Canada to all parts of the world, but more particularly to Western Europe. (2) Industrial raw materials (cotton, hemp, rubber, petroleum, and various metal ores and metals) are shipped from all parts of the planet to the centers of industry. (3) Products manufactured by mass-production techniques are marketed in practically every nation, dependency, and colonial territory. (4) Migrants and travelers move above in large numbers. (5) Techniques of communication (press, camera, radio, movies) convey information back and forth around the earth. (6) A period

of prosperity or depression in Europe or North America is reflected in the economy of every continent.

Nations and people, comprising this world-wide economic community, differ in their production techniques and their per-capita wealth and income and their standards of material well-being. Consequently, the allocation of goods and services to the various regions, in proportion to their needs, is one of the most crucial economic problems which the world faces.

8. The Goal of Income Distribution

Production is not an end in itself. It is significant only in so far as goods and services reach the individuals and groups which need them. Hence the allocation of income is the ultimate test of the effectiveness of every economic system.

Income allocation, to achieve maximum results, must provide (1) a flow of goods and services adequate for survival and for efficiency. (2) The goal of income allocation should be the least possible quantity of goods compatible with survival and efficiency. No advantage is gained by continuing to produce goods after this minimum has been attained, since the purpose of productive effort is not abundance of goods and services but abundance of living. (3) Once the minimum of goods and services necessary for survival and efficiency has been achieved, additional expenditures of productive effort can be directed toward an increase in quality, including such aesthetic qualities as design, color, line, and workmanship. (4) A range of income levels which will lead the energetic and ambitious to exert themselves, and which will be equated to variations in productivity. (5) Special provisions for bringing the more backward economic areas to the level of survival and efficiency occupied by the more forward areas.

Income distribution is one of the more potent means of stabilizing an economy and of keeping the members of a community working for survival, efficiency, and improvement. Productive efficiency is partly or wholly wasted unless it is matched by an equal efficiency in the apportionment of the goods and services produced.

CHAPTER 6 Overhead Cost

PRINCIPLE 6 *The Less Overhead the Better*

1. Nature of Overhead Costs

Overhead costs is a term used to describe the outlay involved in operating the entire economic and social apparatus as distinguished from the outlay involved in carrying on particular productive operations. Used in this sense, overhead would include such items as interest on debt and taxes paid to the government.

Operating costs, such as outlays for wages, raw materials, and fuel, which rise and fall directly with the volume of production and the price level, are called "variable." Overhead costs, on the other hand, which have no necessary connection with the productive process, are "fixed." A factory built with borrowed money must pay interest and taxes whether it is running on a full schedule or is standing idle. Operating costs vary with production. Overhead costs are a constant charge and have no necessary connection with the functioning of the enterprise.

Should an enterprise cease production, its operating costs would also cease. Its overhead costs would continue, however, and if they continued long enough, would eat up the entire capital of the enterprise. Viewed from this standpoint, overhead costs are a constant threat to solvency. If they rise high enough and continue long enough, they can bankrupt any private or public economy. Overhead is a constant and, ultimately, a destructive charge on an economic apparatus, which should be watched vigilantly and held to the lowest attainable level.

One more general comment might be made before we begin an analysis of overhead costs. The problem of overhead exists in every type of economy. It is urgent under a use economy as it is under a commodity economy. It menaces the solvency of a socially owned economic apparatus as of a privately owned economy. Overhead costs are merely one example of a common human frailty: the urge to abandon a central purpose and to devote time and energy to secondary or even contradictory objectives.

The central purpose of an economy is to provide subsistence for the community. Overhead costs tend to restrict and to subvert that purpose.

2. Sources of Overhead

Overhead costs are thought of primarily as matters connected with finance, and are therefore dealt with in the first instance by the accountant. For the purposes of this discussion, however, we shall consider overhead costs first as connected with the productive process rather than with its financial aspects and second, as a burden on the entire socioeconomic apparatus rather than on the productive process alone.

In order to narrow the issue and to make it concrete, we shall ask: what factors in the socioeconomic apparatus divert productive effort, and the goods and services produced from channels which would provide subsistence for the producers and their immediate dependents? The question might also be phrased in this fashion: what part of the total community product, or the total community income goes, directly or indirectly, to individuals or social institutions which do not contribute, directly or indirectly, to the output of goods and services available for the maintenance and improvement of the economy? We shall attempt to deal with these matters by dividing the sources of overhead costs into seven chief groups: (1) handling, (2) processing, (3) management, (4) promotion, (5) government, (6) waste, and (7) parasitism.

1. We might deal with the matter of handling in one of its simplest forms by citing the illustration of corn carried to a famine area. At a certain distance the carrier has eaten all he carries and the famine-stricken territory is impoverished and not relieved by his arrival, which adds one more to the mouths that must be fed. The principle is a very broad one, however, applying to all phases of an economy. The development of ocean freighters, railroads, and truck services with their large volume of heavy materials shipped hither and yon has led to much bragging and boasting about the manner in which industrial communities are able to utilize foods and raw materials from every corner of the globe. The fact is incontrovertible, but the cost is subtracted from the total world product and the total world income. Iron ore, shipped from Cuba to Baltimore or from Spain to Great Britain is more expensive than iron ore extracted from the earth and converted into commercial products with coal mined and converted into coke on the spot. The Ruhr steel industry enjoys this advantage. British steelmakers lost it when they began the importation of iron ore. Huge quantities of freight hauled over vast distances are a disadvantage and not an advantage to an economy. Such operations may be necessary, but they involve an element of overhead which, if sufficiently extended, will bankrupt the economy.

Food is one of the bulkiest freight items. Brazilian coffee, Cuban sugar, Argentine meat and wheat, Oregon apples, California oranges are shipped to all parts of the world. Latterly, in the United States and Canada, California has provided lettuce, and Texas has furnished string beans, to northern areas lying deep under the winter snow blanket. Before rail and truck freight made this service possible, Boston and Chicago relied upon carrots, onions, potatoes, and stored cabbage for winter vegetable fare. Instead of oranges and grapefruit, they ate apples and pears out of storage cellars. Valid reasons favor the all-year green diet, but there can be no question as to its cost. Strawberries, eaten by Detroiters in February, are bound to involve a greater outlay of labor and materials than strawberries eaten by the same folks in July.

Carrying coals to Newcastle cannot fail to prove costly in terms of effort. Whether the carrier does or does not make a profit by doing it is of no significance to the economy. Butter and egg dealers may make a profit by passing their wares from hand to hand and charging for the operation. The result is a net loss of

time, energy, and the other costs of handling. Handling involves expense. The more handling, the greater the expense, and the higher the price which the consumer must pay for his product.

Costs of necessary handling are a legitimate operating charge on production. Unnecessary handling involves an addition to overhead costs.

2. Processing is a second source of overhead costs which is associated primarily with foods. The commonest forms of processing, cooking, and preserving, are long-established household practices which involve the conversion of fresh, perishable foods into more keepable forms. Industrial society has elevated this domestic activity into one of the chief branches of the economy. Canning, storing, freezing, and chemicalizing fresh food prolongs its life. Most economies have milled grain into flour of varying fineness. Industrial economy has added canning and packaging as an essential phase of processing.

The result, as seen in any large market, is an extensive assortment of canned and packaged food. In so far as health is enhanced by food processing, the outlay involved may be included in production costs. But beyond that point it constitutes a part of overhead. The fact that centralized marketing is more profitable than local marketing or than production for use is of no significance so long as processing involves an unnecessary outlay of man power and materials. Health losses, due to the use of harmful preservatives and the elimination of parts of a food, such as the hull, germ, and oil in grain milling, adds a health item to the economic losses involved in processing.

3. Management is a third source of overhead costs. By management we mean all of those activities which are involved in planning, co-ordinating, and directing an activity, enterprise, institution, or department of government. The management of a large enterprise is commonly called a bureaucracy.

Shoemakers, tailors, harness makers, and other craftsmen are their own managers, planning and putting their plans into action. With each increase in the size and complexity of productive operations, the role of the handworker and that of the manager are more clearly differentiated. Modern industry has advanced this process by associating various technical services such as research, sales, advertising, and credit with the operations involved in physical production. Management has also subdivided itself into a board of directors, a chairman of the board, a president, vice presidents in charge of this and that, a secretary, a treasurer. These officials, with their counterparts in governmental enterprises, are classed as general officers. Below them in the bureaucratic apparatus are the managers of particular departments, with their subordinate assistants, secretaries, inspectors, and foremen. The personnel of this entire managerial apparatus takes no direct part in making or assembling the parts of an automobile or in carrying and delivering the mail. Yet General Motors and the U.S. Post Office are equally supplied with a managerial staff.

It is not our purpose, at this point, to argue pro and con concerning the usefulness of management. We are merely concerned with its existence, its form, and its increased magnitude in relation to the processes of production and consumption.

Management, as represented by the president of General Motors or the Postmaster General of the United States, does not make automobiles and does not sort mail. At the same time, management consumes food, shelter, clothing, and other goods and services. Consequently, the producers of goods and services must provide management with its subsistence. The cost of General Motors management is charged against the product of that enterprise. The cost of managing the U.S. Post Office is charged against the income of the Federal Government.

Industrialization has led to the establishment of larger factories, transportation agencies, merchandizing, and financial institutions. It has also made possible larger and more populous nations with an increasingly elaborate governmental apparatus. The consequent increases of material and man-power costs of management are being charged to the productive process.

4. Promotion is a fourth source of overhead costs. Promotion means putting across ideas or material. Historically, promotion has had to do with ideas, such as those embodied in religious cults, and with such social practices and institutions as private property in the means of production and the special privileges attached to ownership, prestige, and power. Currently, promotion is associated with the selling of goods and services for profit and

the selling of national loyalty or patriotism to the population at large.

Industrialization has been accompanied by the development of five related activities in the promotional field: (1) the science of the human mind and its workings, under the title psychology, which has furnished much of the theoretical foundation for promotion; (2) the science of advertising, which has dealt chiefly with the popularization of particular goods or services; (3) the science of salesmanship, involving the personal relations between seller and buyer, the making of contracts, and the transfer of property and property titles; (4) the science of propaganda, which has dealt chiefly with the promotion of political or economic ideas, and (5) the science of public relations which is now emerging as a department or division of large-scale private or government enterprise. As personal relations have been swallowed up by sheer bigness and complexity, it becomes the function of public-relations executives to restore a semblance of personal touch to a situation which has been depersonalized through the introduction of machinery or through institutionalization.

Psychologists, advertisers, salesmen, propagandists, and public relationists are further removed from the productive process than management. They may increase profit, but they do not participate in converting raw materials into subsistence. The support of these individuals and their dependents is a charge on group income which must be described as an overhead cost.

5. Government is a fifth source of overhead costs. By government we understand the local, regional, and central political apparatus.

Governments, and particularly socialist governments, carry on productive operations, such as mining, agriculture, manufacturing, transport. They also provide educational, health, recreational, and other services. Aside from the production of goods and services, governments pass and enforce laws, maintain police and other armed forces, preserve order, guard the frontiers, and carry on relations with other governments. In large cities, states, or nations, governments are subdivided into various departments which are housed, supplied, and staffed. The most elaborate department in the government of rich, powerful states is that of defense—army, navy, air force. The result is an extensive bureaucratic apparatus which is supported by levying taxes and borrowing. Among the items of government expense, war preparations and war making rank first. In the case of the United States and some other nations, the cost of warmaking exceeds the combined total for all other government departments. Government expenditures other than those for goods and services may absorb a quarter or a third of the entire national income. In such cases, governmental expenditure becomes a chief source of overhead cost.

6. Waste is a sixth source of overhead costs. For the purposes of this analysis we distinguish between purposed destruction, such as that which takes place during a war, and the failure to make effective use of natural resources, productive equipment, and man power, which we are describing as waste. In this sense waste might be thought of as synonymous with social inefficiency. Failure to conserve such natural resources as topsoil and forests is one principle source of waste about which we have already commented. Failure to keep the productive apparatus operating at capacity is another. The unemployment of available manpower is a third form of waste. A fourth is the failure to utilize available human skills and talents through the denial of opportunity for their training and development. A fifth source of waste is conspicuous consumption. In these and in other ways social groups provide themselves with a lesser supply of goods and services than their natural resources, their sciences and arts, and their human talents and skills make reasonably possible.

Through waste, a given outlay of raw materials, capital equipment, and man power produces a smaller quota of subsistence than it might do under conditions of great efficiency. Thus it subtracts from the total income which should be available for supplying the needs of the community.

7. Parasitism, another source of overhead costs, exists when a member or a section of the community uses up a greater total volume of goods and services than he produces. Since the subsistence available at any given time is the product of man power, using capital equipment to convert the gifts of nature into consumable goods and services, those members or sections of the community which take more in subsistence than they contribute in

product, must live in whole or in part upon product for which others are responsible.

Certain groups in every community are incapable of self-support—the very young, the very old, the sick, the crippled. These groups consume more than they produce, and are therefore parasitic, but their parasitism is involuntary and in the case of children and old people, there is every likelihood that they will do or have done enough productive work to cover the costs of their maintenance during their periods of incapacity for productive effort. In these cases, while the individual temporarily may consume more than he produces, the sum total of the individual life shows a surplus of production over consumption.

There are, however, in every community, able-bodied adults who use goods and services without making any corresponding return in the form of production, and who are therefore voluntary parasites. As communities grow richer, the numbers of such consuming nonproducers reaches considerable proportions. Chiefly among the voluntary parasites are (1) the owners of income-yielding property, (2) the holders of sinecures, either in public or private economy, (3) those who follow parasitic professions, (4) those who live by depredation and plunder. Space will not permit any analysis of these four groups of parasites. For our present purposes, the cost of their maintenance is a charge against community income, since they consume more than they contribute.

These sources of overhead costs—handling, processing, management, promotion, government, waste, and parasitism—are all charges against community income. They must therefore be met by the production of a volume of subsistence sufficient to cover them, in addition to the upkeep costs incident to the productive process.

3. Causes of Overhead

We have listed some of the sources of overhead. We turn now to examine its causes, which may be classed under three main headings: (1) the maintenance of the social apparatus, (2) the implementation of the will to power and prestige, (3) the desire of human beings to enjoy maximum comfort and convenience with minimum effort.

The social apparatus, like any other mechanism, involves maintenance, repairs, replacements, improvements, all of which must be paid out of community income. The greater the magnitude of the social environment, the greater will be the costs of maintaining it.

Village life is built around an inexpensive social apparatus. There are few or no paid functionaries. Government is not departmentalized. There are no expensive capital installations—halls of parliament, city halls, law courts, prisons. Most of the public activity of the village is conducted by volunteers, or by people who, when paid, receive the going rate for wage labor in the community. Thus the overhead of village life is a factor of minor importance, and is carried, for the most part, by volunteered labor.

Industrialization has been accompanied by three major developments in the social apparatus. The first is the rise of the modern nation-state; the second is the rise of the modern commercial-industrial city, and the third is the development of the social services, including transportation, communication, education, public health, recreation, and social insurance. These three developments have transformed the volunteer social apparatus of the village into the gargantuan, professional, social mechanism of the present-day Western world.

The urban-national mechanism contrasts with that of the village in magnitude, complexity, the interdependence of its parts and the centralization of authority. All four of these attributes involve an increase in the number of men and women who give their full work time to operating the state phase of the social mechanism. Supporting these bureaucrats and supplying them with office-space, equipment, and materials becomes one of the chief fixed charges upon the income of industrialized communities.

It seems obvious that increased magnitude, complexity, interdependence, and concentration of authority will involve additions to social overhead. The more elaborate the social apparatus, the greater the outlay needed for its support. The other

two causes of social overhead listed at the beginning of this section arise from individual aptitudes and express themselves in the social structure. One deals with the power urge and the other with human disinclination to expend effort.

Seekers after power and prestige add to the size and complexity of the social apparatus as the most likely means of satisfying their urge toward personal preferment. Power seekers may advance their interests through (1) a political following, organized into a clique or party; (2) a military following; (3) a means of securing wealth and income based upon slavery, peonage, the purchase of labor power, or some other form of exploitation. Prestige seekers advance their interests through conspicuous consumption which involves wasteful capital outlays and wasteful uses of goods and services. The attempt to gain power and prestige adds little or nothing to the subsistence of the community, but it involves expenditures of materials and man power, and where the power struggle assumes military forms, it leads to the large-scale destruction of capital goods, consumer goods and man power.

The third cause of overhead, the desire of human beings to secure maximum subsistence with minimum effort, is the basis for parasitism. Those who consume more than they produce may secure the excess of their consumption over their production by taking it. In a highly organized community, however, direct expropriation is usually frowned upon. Instead, property titles or other forms of monopoly and soft jobs provide the would-be parasite with legalized and socially accepted means for consuming more than he produces.

Seekers after power and prestige and would-be parasites encounter opposition. First, there are competitors who are striving to reach the same parasitic positions. Second, there are critics who, in the name of justice, condemn the inequality and waste involved in parasitism. Both competitors and critics are met by some variant of the public relations counsellor, in the person of courtier, diplomat, attorney, priest, publicity agent, who is retained to justify power grabbing, prestige consumption, and parasitism. Such groups of hangers-on add measureably to the overhead which the community must carry.

4. Limiting Overhead Costs in An Industrial Community

Principle 6 at the beginning of this chapter reads: "The less overhead the better." Thus far our discussion has dealt with the nature, the sources, and the causes of overhead. We have seen that they are charges against community income, arising partly out of the productive process itself (such as the cost of leadership or management) and partly outside of the productive process (such as the costs of government). Whatever their source or cause, overhead costs, like friction in a mechanical operation, should be reduced to the lowest possible figure. Mechanically speaking, the minimizing of friction is a major consideration. Economically speaking, the minimizing of overhead costs is also a major consideration.

We shall therefore devote the remaining pages of this chapter to a program for reducing overhead costs. For purposes of convenience we shall present the program under two heads, one dealing with the reduction of overhead costs in an industrialized community and the other dealing with the reduction of overhead costs through the limiting of industrialism. We shall begin with the industrial community, because we are today part and parcel of an industrial society which is steadily increasing the degree of industrialization.

Our listing of methods for reducing overhead costs in an industrial community will cover two general types of problems. The first type arises out of the social structure; the second type out of the human being who inhabits the social structure.

1. Overhead costs may be reduced by raising the level of justice prevailing within the economy. By justice we mean an equitable balancing of relationships between man and man, between the individual and the social group, or between social groups. We shall deal at greater length with this subject in Chapter 9. One of the chief causes of overhead costs in any economy is conflict based upon a sense of outrage at injustice, real or imaginary. The economy should be so set up that every individual and subgroup associated with the total enterprise feels that an

effort is being made to give him the same opportunity as every other individual or subgroup.

2. Overhead costs may be reduced by raising the level of efficiency prevailing in the economy. This truism applies to any and every form of economic activity. The term efficiency as here used means securing the maximum of quality and quantity in output from resources, man power, and technical competence.

3. Overhead costs may be reduced by preserving the largest possible degree of use economy within the total economy. Overhead costs are lower in use economy than they are in a market economy. Industrialization has tended to push into every corner, crowding out production for use and substituting production for market. In certain areas such as the production of complicated gadgets like electric motors or television apparatus, this procedure is justified, because the advantages of specialization, division of labor, and mass output are overwhelmingly great. In other directions, however, where individual taste is a factor, or where personality preference may be brought to bear, the advantage is in favor of a use economy.

A theoretical line between those forms of economic activity in which advantage is gained by producing goods and services for market and those forms in which advantage is gained by producing goods and services for use, serves as a guide in the effort to formulate an economic pattern which includes both market economy and use economy, but with emphasis on the latter. The greater the shift from market economy toward use economy, the greater the possibility of reducing those overhead costs which are inherent in a market economy.

4. Overhead costs may be reduced by producing locally to meet local needs. The specialized production of automobiles in Detroit and vicinity and their distribution over the entire United States involves a heavy transportation charge, beside the costs incident to such centralization. It may be argued and proved that in this particular case of specialized production the gains from specialization more than balance the costs incident to transportation and centralization. The automotive industry has experimented with local production units in Canada and various European countries and local assembly plants in various parts of the United States.

The golden mean lies somewhere between centralization of the industry in and around Detroit and a large number of autonomous local production and assembly units.

At the other extreme, the local production of garden produce ensures the consumer a freshness which no amount of processing or refrigeration can duplicate. It likewise eliminates the costs of handling, transportation, financing, and storage which arise out of the centralization of the industry in climatically favored localities.

Again there is a golden mean which can be established by experiment. In the field of food production, however, the health advantages of a use economy supplement the savings incident to local production.

Local production to meet local needs has one advantage of considerable sociological significance. It gives the local community partial control of its own source of livelihood and thus renders it independent of centralized production at the same time that it throws added responsibility upon the local population.

5. Overhead costs may be reduced by minimizing processing and packaging. A pound of grain costs four cents. The same grain in the form of wrapped bread costs 16 cents, and in the form of packaged breakfast food costs 20 cents. Meanwhile, the amount of nourishment in the wheat has been diminished by processing and the cost of the product has been increased by processing and packaging. The pound of wheat, eaten raw or boiled whole at a low temperature, contains more food value, minus much overhead.

6. Overhead costs may be reduced by abandoning competitive promotion and putting in its place a thorough education in right living. Industrialized economy has added to its costs of operation two vast units: selling and advertising. Both are devoted to the stimulation of wants. Competitive advertising is designed to stimulate wants for a particular brand or trademark rather than for a good or service. If it is desirable to call the attention of consumers to new or different articles, the situation can be met by child and adult education in right living, which would cost far less than the onerous burdens imposed upon the economy by promotion.

7. Overhead costs can be reduced by abolishing military preparations and war. War enterprise has become so extravagantly wasteful of man power, energy, and materials that the government of a rich and powerful nation like the United States spends more money for war, in peacetime, than it spends for all other governmental purposes combined. During a period of active warfare, say, the fiscal year 1944–45, the United States Government spent more for the waging of war than it had spent in all of the nonwar years since the beginning of its history. The abolition of military spending would decrease social overhead more drastically than any other single modification in the public policy of the Western world.

8. Overhead costs can be reduced by minimizing government. The administrative apparatus of government is a vast, sprawling, bureaucratic structure, built up originally to perform some socially useful function. As new needs arose, new departments of government were established, providing income and prestige for supporters of the group in power. It is easier to set up a government bureau than to abolish it. While new needs create new bureaus, the old bureaus tend to persist, thus adding to the government costs. Governmental functions should be reduced to the barest minimum necessary to provide needed public service, and the governmental apparatus itself should be worked down as an athlete works down superfluous tissue.

9. Overhead costs can be reduced by restricting opportunities for parasitic living. Poor, primitive communities offer a scant margin for the support of parasites. Increased income and wealth make it increasingly easy for able-bodied adults to live without labor upon the goods and services produced by others. The most extensive source of parasitic living is provided by property ownership. Sinecure jobs are another source of parasitism. The modifications in property law, which would make it difficult or impossible for able-bodied adults to receive an income without rendering useful service, would play an important role in cutting down overhead costs. Such a measure would be based on the assumption that each member of a community should contribute to the productive process according to his ability.

10. Overhead costs can be reduced by the voluntary acts of individuals who realize the need of eliminating unnecessary expenditures of man power, energy, and materials. By vigorous self-direction, the individual can reduce the need and cost of management. By voluntary co-operation in the promotion of community order and peace he can reduce the costs of government. By maintaining a high standard of workmanship, he can decrease spoilage and the costs of inspection. By self-service the individual can reduce service overhead. By avoiding waste, he can make an additional contribution in lowered costs. Finally, by a voluntary limitation and reduction of wants, the individual can decrease the amount of goods and services required for his maintenance and thus conserve resources and labor power. In a community of socially conscious human beings, such voluntary efforts would play an important role in the reduction of social overhead.

The limitation and reduction of overhead costs is one of the most effective ways to conserve natural resources and labor power and to lower the social tensions involved in the maintenance of an extensive bureaucratic apparatus.

5. Limiting Industrialism

The suggestions for decreasing overhead costs presented in the previous section presumed a continued high level of industrialization. There are also possibilities of decreasing overhead costs through a reduction in the degree of industrialization.

Industrialization, like any other phase of an economy, may be designed and developed in such a way that it will amplify and enrich human experience. It may also become an object in and for itself—industry for the sake of industry, with wheel added to wheel and process added to process merely because industrial engineers like to see the wheels go around. There is a third possibility, in this case the dominant one, namely that since industrialization has added to the capital invested in an enterprise, it has multiplied the possibilities of job owning by the propertied and of unearned income to the owners of the stocks and bonds covering the jobs, thus augmenting the prestige and power of

those in control of the economy. Industrialization has therefore been pushed by the makers of economic policy.

Since we, in this study, are concerned primarily with the provisions of an adequate subsistence at minimum cost we must apply this test to industrialization as such. When we do this we are confronted by generalizations, like that of John Stuart Mill, that so far as he could judge, industrialization had not added to the happiness of a single human being. Those who share Mill's general outlook—and there are many such—propose to reduce overhead costs by imposing limitations upon the entire industrial process.

1. Increase the area of the economy served by human energy and human faculty. Instead of tractoring the garden, spade it. Instead of buying food, produce it. Instead of securing a prefabricated house, construct it with your own hands, stone by stone and board by board. Instead of riding, walk. Instead of spectator living, participate actively and personally in the provision of subsistence.

2. Re-establish joy and pride in workmanship by doing things instead of permitting a machine to do them. Some of the supreme satisfactions of life arise out of creative and constructive efforts. Industrial society has substituted for these basic satisfactions (1) possession of a multiplicity of gadgets; (2) professional amusement and entertainment (sports, movies, radio, video, comics); (3) comforts, conveniences, and short cuts; (4) the consumption of cheap, habit-forming drugs. The mass production and sale of these four items has been immensely profitable to the ruling oligarchy. The net loss to the workers has been heavy.

3. Devote leisure time and means to productive, constructive satisfying activities such as gardening, building, decorating, craft work, music making, folk entertainment. Industrial society has tried to professionalize all of these fields and has partly succeeded to the serious detriment of the people.

4. Restore mutual aid among neighbors. In preindustrial communities people helped each other, joyously. It was not an exchange of labor so much as giving to those who were in need. Thus buildings were put up, crops were harvested, the sick were tended. Such acts affirmed the existence of the neighborhood and gave it validity. Industrialism has professionalized these relations, dehumanized them, and added the cost of managing them and performing them to the total of social overhead and by so doing has undermined the functions and crippled the unifying forces making for neighborliness. The restoration of mutual aid among neighbors will reduce social overhead at the same time that it brings to individuals and social groups the supreme joy that goes with giving and sharing.

5. Establish and maintain quality and simplicity as life goals. Industrialism has emphasized quantity, variety, complexity, and change because mass marketing required them to maintain sales volume. Quantity, variety, change, and complexity increase social overhead. They serve no useful purpose. This is nowhere better illustrated than in fashion. Clothing, house furnishings, and automobiles are in style today and out of style tomorrow. Hence they are thrown aside before their usefulness is exhausted. Quality goods are used till they are used up. Simple living rejoices in fewness rather than manyness and in beauty rather than conformity to the current fashion. With emphasis on quality and simplicity there goes a reduction in the volume of output, which conserves both resources and man power, and an increase in the aesthetic level of life, which make the simple life beautiful.

6. Revive the local community. Decentralize the overgrown, unwieldy, and costly cities. Urbanism involves unnecessary overhead—in horizontal and vertical transportation and in many other directions. Smaller, less complex communities can function successfully without these costs.

We have devoted much space to the problem of overhead costs because it is one of the most important and least understood phases of an economy. During the past few years we have seen every important economy of Western Europe crushed under the intolerable overhead imposed by war. Huge concentrations of industry, and population, such as New York and Chicago, are debt ridden and actually bankrupt. Whether the economic unit is a household, an industry, or a nation, it may have its solvency destroyed by excessive overhead costs and may balance its books by a planned reduction of overhead.

CHAPTER 7 Ownership and Use

PRINCIPLE 7 *The Economy should be owned by those who use it*

1. Ownership

Ownership is a man-made concept. Rudiments of it may be found in nature where birds defend their nests and animals protect their hunting grounds against intruders. Birds and hunting animals are either struggling for survival or insisting upon a use right. Probably they have no abstract concepts corresponding to human ownership of property.

Ownership, property, and property law have played a role of varying and increasing importance in every economy known to historians. They are an outstanding aspect, perhaps the outstanding aspect, of the contemporary economic scene.

Ownership bestows upon the owner of a piece of property two privileges: first, that of exclusive use; second, that of transfer, by sale or gift, to other exclusive users. Property titles are thus based upon three principles: (1) the right of the owner to use the property; (2) the right to exclude others from its use; and (3) the right of transferring to others the privilege of exclusive use.

Ownership thus establishes "mine" and "thine," with a boundary or property-line between the two. Boundaries easily become barriers, separating and segregating. The whole of present-day economy is crisscrossed by property frontiers, some of them established and maintained by individuals, some by private association, and some by public bodies such as municipalities and nations. National sovereignty is an enlarged phase of ownership and the privileges and monopoly rights which accompany ownership. Individuals and private associations which own property enjoy an exclusive right to use the property and to transfer it by gift, sale, or bequest to others. Public authority carries with it the additional right to pass and enforce laws, and to judge its own actions. In the case of the wealthier and better-armed nations there is as yet no appeal from this judgment except that of armed force, expressed in civil or international war.

Distinctions between "mine" and "thine," which are the outstanding characteristics of all property rights as they are embodied in present-day Western custom and law, are paralleled by distinctions between "mine" and "ours." That which is "mine" is individual property. That which is "ours" is collective property. Subject to the intervention of law, the individual may use or dispose of his property as he sees fit. Collective or group property may be used or disposed of only by the group or its authorized representatives.

Property-owning groups may be private associations, such as partnerships, legally constituted private bodies, such as corporations and chartered associations or public bodies such as public corporations or divisions of the community (townships, municipalities, counties, states, nations, and groups of nations). In all of these cases, the individual may neither use nor dispose of group property unless he is authorized to do so by the group. In an industrial community, most of the key properties are collectively owned by business corporations, by nonprofit corporations such as churches and universities, or by public authorities.

Property relations in the modern community are complicated by multiple ownership. Instead of one title to a piece of property, there are usually several titles. Take the railroads of the United States as an example. First, a railroad is owned by a corporation, say the Michigan Central. Second, this corporation is owned by another corporation, the New York Central. Third, the New York Central, or any other corporation, is owned by stockholders acting through their legally constituted representatives. Fourth, the property is mortgaged (bonded) and the bondholders have a certain equity in it. Fifth, the State of Michigan, under the principle of eminent domain, may take the properties of the Michigan Central for public uses. Sixth, the United States Government may

regulate the use of the property or take over the property and operate it during an emergency. And seventh, in the case of bankruptcy proceedings the courts may appoint receivers and direct them to operate the railroad. The ownership of a piece of property may therefore be individual and collective at the same time, with several claimants to authority over the property competing to exercise control for their own advantage.

Ownership therefore has no necessary connection with use. No presumption of use inheres in property titles save in the case of squatter sovereignty. No legal requirements exist demanding that property be forfeited in case it is not put to use. Even a moderate proposal that land, held out of use, be taxed to the full extent of any increase in its value has failed to gain any considerable support, despite an active propaganda carried on through nearly a century. Property may be held completely out of use under the laws of present-day Western society unless the public authorities intervene and exercise the right of eminent domain.

While the culture pattern of North America does not require an owner of property to use it, it does permit and encourage him to sell the use right to others. Thus the owner of land sells the use right to tenants who pay rent in return; the owner of liquid capital (money and credit) sells the use right to borrowers, who pay interest in return; and the owner of capital goods sells the use right to wage workers who pay profit in return. Rent, interest, and profit are paid to property owners in conformity with custom and law. Behind them is the civil and military power of the state.

Property rights, in the industrialized areas of North America are not primarily the right of the owner to use his property, but the right to permit others to use it in exchange for the payment of rent, interest, and profit. Holders of large amounts of property are therefore enabled, under customary and legal guarantees, to receive income in return for the ownership of property and are enabled to live without working upon the labor of those who use their property.

Since the property owners of North America enjoy a special social status as well as a special economic and legal status, the property principle ("mine" and "thine") is one of the foundation stones of the social order.

2. Objects of Ownership

Having established the principles of ownership we are in a position to ask what may be owned. For our purposes, the objects of ownership may be divided into four general groups: (1) fellow creatures; (2) nature; (3) the social environment; and (4) the product of human ingenuity and creativity. Fellow creatures are living beings whose endowments of mass, energy, creativity, will, and purpose make them useful to the potential owner. They may be fellow humans, domesticated animals, or wild animals, captured and held in a state of involuntary servitude by their owners. Nature is a broad term which includes all factors and forces not shaped or determined by man—resources of energy, fertility, topography, water, air, and sunlight. Among natural resources the land has been considered an object of ownership; the high seas theoretically may be used by all comers. Air and sunshine are classed as free goods, available to all in proportion to need. The social environment includes the modifications which man has made in nature; the uses to which man has put nature; the capital equipment embodied in buildings, implements, transport facilities; and the results of collective thinking represented by the arts and sciences. The fourth group contains the results of one man's activity—the music of a composer, the canvasses of a painter, the books of a philosopher, the inventions of an engineer, the discoveries of a scientist, the output of a craftsman or of a working team of craftsmen.

Each human being is in contact with various fellow creatures, some of which are fellow humans, others, nonhumans. The humans may be members of the family or outsiders. The nonhumans may be animals, fish, insects, or, if we wish to stretch a point, one or another form of vegetation. Human beings have established over these fellow creatures ownership controls aimed to subordinate the owned to the interests of the owner.

Property titles to fellow creatures may be absolute or limited. Absolute titles carry with them the right of the owner to end the life of the owned. Among certain peoples, the head of a household may put to death wives, children, and servants. The ownership of chattel slaves usually carries the power of life and death.

Owners of horses, cattle, sheep, dogs, and other domestic animals may terminate their lives.

Fellow creatures afford various advantages to their owners. (1) Their bodies and bodily functions may provide food. (2) Their energy may supplant the energy of the owner and serve his purposes. (3) They may reproduce themselves and thus provide a continuous supply of food and energy for their masters. (4) Fellow creatures may be turned into cannon fodder. (5) Fellow creatures may provide diversion and amusement. Fellow creatures are used by modern man in all of these ways. The carcasses of animals form one of the chief food sources of the Western world. Bodily secretions, such as milk from mammals and honey from bees, are even more extensively used. Horses and other quadrupeds are bred and trained as burden bearers and draft animals. Labor power is sold and bought in the open market, as a part of the regular procedure of a wage-labor economy. Owners breed domestic animals to suit their purposes. Genetics is a recognized science, whose aim is to enable the owner to turn out types of fellow creatures better adapted to serve the ends that he has in view.

Modern states have developed a novel variant of fellow-creature ownership in the form of conscription for military service and for compulsory labor. The war-making epoch which began in 1910 extended the area of compulsory military service and transferred industrial conscription from the colonies to the centers of Western civilization.

Military and industrial conscription are based on the assumption that the state may dispose of the individual citizen as it sees fit. It owns, not the body of the citizen, but his loyalty. Those who make state policy and who play the game of power politics have at their disposal the property of the nation and the services of its people. Both may be expended, at the behest of the policy makers, until the property is destroyed and the lives of the citizens are snuffed out.

Custom, law, and the agencies for shaping public opinion not only sanction these procedures and justify them in terms of ethics and morals, but the leaders who implement such policies have their statues set up in the public squares and the perpetrators of the policies are loaded with decorations and honors. Since the development of mechanized warfare, the living creatures who perish in war are chiefly human beings.

In our final category, the use of fellow creatures for diversion and amusement, the victims are usually animals, birds, and fish. A few of these creatures are penned and caged, to be stared at and poked by the idle and curious. The great majority are hunted, tortured, and murdered for sport. Each year, throughout the civilized world, tens of millions of men and women, equipped with rod and gun and served by dogs, horses, and elephants, spend their leisure hooking and spearing fish and blowing the lives out of animals and birds. Next to war, "the sport of kings and the king of sports," fishing and hunting are relied upon by civilized men to offset the tedium and strain of daily routine. Daily routine is monotonous and exacting; of that there can be no question. But by what right do the victims of routine recoup themselves at the expense of innocent and for the most part defenseless and helpless fellow creatures? The answer is simple —by the right of the strong to coerce, exploit and, when they wish, to destroy the weak. This is the right behind every phase of the ownership and use of fellow creatures to serve the purposes of those who occupy positions of authority and mastery.

Ownership, coercion, exploitation, and extermination of fellow creatures pervades the entire structure of contemporary society. While forms and practices vary, the essential feature of the procedure is the sacrifice of the interests and purposes of the victim to the interests and purposes of the owner and master.

3. Ownership of the Earth

We turn, now, from the ownership of fellow creatures to the ownership of the earth. Men may, and frequently do, breed their fellow humans and fellow creatures which they later utilize for food, for services, for power, and for sport. The earth is in a different category. No man and no group of men made the earth, with its fertility, its water supply, its atmosphere, and its quota of sunlight and starshine. The natural environment existed before man arrived on the scene. The earth is a common heritage

of various forms of life, including human beings. Each creature is born upon its bosom. Earth is the common mother of man and of his fellows.

We have already commented upon nature as the source of human subsistence. Man lives from nature and upon nature. Therefore those who control nature control life as well as livelihood. Since ownership confers exclusive rights upon the owner, and since the fertile and desirable portions of the land surface of the earth are limited in extent, ownership provides the owner with a special privilege and a source of power.

The earth is so limited that there are not enough fertile or useful acres to provide each human being with all the land he wants. Quite the contrary. In densely populated areas the demand for land far exceeds the supply. Furthermore, population tends to increase, while the supply of land remains static.

Another inequality factor is provided by the wide variations in land fertility or usefulness. No two acres of land are equally productive. Deserts produce little or nothing. Oases provide a surplus over the needs of the user. Consequently, while desert acres are unwanted, fertile, well-watered acres are in great demand.

Anyone fortunate enough to own fertile, useful acres therefore occupies a privileged position. He can either cultivate the land, use what he requires and exchange the surplus for the surpluses of other producers, or he can permit others to use his land in return for rent payments. In this second case the landowner is able to say to the land user: "You may farm my land, provided you give me a share of the product." By this device of renting out land, the landowner may live without work on the proceeds of the tenant's labor.

Landownership confers a special privilege on those who hold the property titles to wanted land, because it provides them with means of livelihood and sources of unearned income which are not available to nonowners. Earth ownership thus gives the title holder (1) a source of livelihood; (2) a means of securing unearned income; (3) wealth, prestige, and power which puts him in a different class from his nonowning fellows; and (4) the possibility of building up or of exhausting and destroying land fertility.

A community which aims at the provision of equal opportunity for its members must treat the earth as common property. Several accepted practices conform to this requirement. The right of eminent domain is all but universally recognized. Under it community need may lead to the requisitioning of a segment of the earth, with or without the consent of the owner and with or without compensation. The law has embodied this practice in the theory of dual ownership. Each piece of land has two titles, that held by the state and that held by the citizen. At any time, on the plea of public safety and well-being, the state may assert its title, take the property, and let the private owner shift for himself as best he can.

The principle of dual sovereignty and eminent domain places the interests of the community above those of the individual owner. Under this principle the earth and its resources may be declared the common heritage of mankind to be owned, utilized, and administered in the interest of the community rather than of the private property owner.

4. Ownership of the Social Environment

We come now to the third subject of ownership, the social environment. We have written of the ownership of fellow creatures and of the earth. The social environment presents peculiar ownership problems.

The social environment is man made, the product of past and present human ingenuity and effort. Productive techniques, methods of communication; institutions of government and social administration; the arts, sciences, and philosophies proceed from human imagination, ingenuity, energy, and will. Beset by the rigors of nature and in response to his concepts of need and want, man has built up the complicated fabric of practices, techniques, formulas, and ideas to which we apply the name "social environment."

Both in space and in time the social environment is being added to and subtracted from ceaselessly by discovery and invention, by diffusion, by supercession, and by abolition. To this process of culture modification, individual humans contribute minutely, while humanity in the aggregate is the chief artificer.

Large sections of the social environment are communally owned and communally shared. This is true of public buildings, highways, and public educational facilities. The extent of communal ownership and direction is greater in commercial cities than in the countryside, but it develops wherever technology advances.

Like the earth, therefore, the social environment is collective in its origin and its function. It has been built up by successive generations over periods of time which are more extensive than the life span of single human beings. Numbers of individuals in each generation have helped to construct and to modify the social environment. The advantages and disadvantages of the culture pattern have been shared by the members of the culture group. The social environment is produced by the social group and used by the group. While individuals make contributions to it and derive benefits from it, the social environment is an expression of the group rather than of the individual.

Following the principle that an economy should be owned by those who use it, those aspects of the social environment which are related to the livelihood process should be the common property of the groups which have produced them and which depend upon them for survival and improvement.

Thus far, in our analysis of the subjects of ownership, we have dealt with three areas—fellow creatures, the earth, and the social environment. In each case we have concluded that in terms of both origin and use, the ownership should be vested in the social group rather than the individual. There remains, among the subjects of ownership, the extensive category of personalia, or items of personal use.

5. Ownership of Personalia

Items of personal use may be divided into necessaries, such as food and shelter; comforts, such as easy chairs and warm houses; conveniences, such as electric stoves, irons and toasters, electric washing machines, radio and television sets and automobiles; superfluities, such as excess food, stimulants and intoxicants, unnecessary clothing, and little used or unused tools and implements; and finally, the items of conspicuous consumption whose chief or sole function is to enable the owner and user to establish or maintain social prestige. These items are usually lumped together as "consumer goods" or "consumer goods and services," and divided into consumer durable goods, such as houses, house furnishings and automobiles, and consumer expendables, such as food and services which can be used once, or at most only a few times. Items of personal use are the chief stock in trade of local merchants, department stores, mail-order houses.

In terms of ownership and use, personalia may be divided into those items which are common to the family or household and those which are more strictly personal. House and lot, household furniture, tools, implements, and supplies are usually the legal property of the head of the family. In usage, however, they are the common property of the group, and become personal only when they are in actual use. "My towel," for example, is taken from the common store, used by me for a time, and then returned to the common store. Clothing is largely personal. Food does not become personal until it leaves the common source of supply and is placed on a piece of household crockery before the individual who is to consume it.

Consumer goods, after they leave the workshop, garden, warehouse, or store, are in the main the property of a small social group. They become strictly personal in use terms, only at the point of consumption.

While there are a few consumer goods, chiefly items of clothing and personal adornment, which are essentially individual and personal, durable consumer goods like durable producer goods are essentially social in character. They are used by a group and for the advantage of the group. They are "ours for us" rather than "mine for me."

6. Ownership as Incentive

We have now reached the fourth item mentioned in the second section of this chapter—ownership of the products of human ingenuity and creativity. These products cover a wide range, from the output of a self-sufficient household, through the various fields of mechanized agriculture, industry, transportation, and commerce to the arts, sciences, and philosophies. They extend from unleavened bread, baked on a warm hearth, to the abstract ideas of a mathematical philosopher.

There can be no question as to the great variety and vast quantity of artifacts, formulas, and ideas turned out in the past and present by human effort. This output involved conceptions, plans, techniques of execution, organization, direction, will, determination, and persistence. Why have human beings put time and energy into productive effort and built up the elaborate social environment in which they live? The answer most commonly given and accepted in the West is that men have suffered the pangs of creation and endured the labor of production because of the incentive provided by ownership. Men agonized, suffered, and struggled in order to possess necessaries, comforts, conveniences, superfluities.

There can be no question that in an acquisitive society, like that now prevailing in the United States, the urge to have and to hold is one of the major incentives to effort. If incentive to sustained effort is of primary importance in an economy, certainly the possibility of getting and keeping large quantities of a variety of commodities has been a potent incentive in the Western world.

Does the stimulating effect of private ownership, as embodied in the experience of present-day capitalist economy, result from some acquisitive human instinct? Or is it the outcome of indoctrination?

We shall not undertake an inquiry in the controversial field of human urges. The result would be inconclusive and the inquiry is unnecessary to our argument. Let us be satisfied to remind ourselves that the era of industrialization and mass production has also been an era of advertising, during which cheap paper, the printing press, photography, radio, and other technical devices have multiplied and intensified the means of indoctrination. Invention has provided new gadgets. Mass production and mass marketing have made them widely available. Indoctrination, imitation, and social pressure have developed new wants for the new goods and the increasing volume of wealth and income have made their possession possible for a wider range of customers.

Industrialization and mass production have enabled members of the community to exercise acquisitive urges and to provide themselves with both quantity and variety of possessions. The presence of these goods and services in merchandising establishments as well as in neighborhoods, large and small, the newly developed techniques of high-power salesmanship and consumer credit have combined to lure into the competitive acquisitive struggle a sizable portion of every industrialized community. Even where members of the adult population have been able to resist the pressure, their children, indoctrinated from their cradles, grew up possession conscious, and ready to dedicate their lives (1) to labor for the wealth and income required to buy the currently popular gadgets, and (2) to turn over their available means and mortgage their futures in order to have the finest and latest *jim cracks* turned out by mass production enterprises.

Acquisition, as an urge to human action, is doubtless based upon certain characteristics born into members of the human race. But the absence of this urge in certain primitive communities, side by side with its omnipresence in the industrialized areas of the planet lend strong support to the contention that the present-day drive to get and keep, which is so outstanding in the West, is the result, not of forces inherent in human nature, but of social pressures, skillfully and ceaselessly applied by seekers after profit and power.

These speculations concerning the origin of the acquisitive urge among moderns is of historical interest. Its answer will furnish guidance for the future. The immediate question, however, is of a different nature, namely, what has the social emphasis on acquisition as a way of life done to human beings and to the communities in which they live? Let us attempt a brief answer

to this question, first for individuals and then for the community, approaching the matter from the standpoint of livelihood.

Individuals, in an acquisitive, mass production culture (a) devote a large portion of their adult years to uncongenial, sterile, and often to destructive occupational activities in order that they may get the income necessary to satisfy artificially created wants. (b) They clutter up their lives with a quantity and variety of commodities which, on the whole, are cheaply made, unnecessary, unbeautiful, and in the case of processed food unhealthful. (c) They compensate for the uncongeniality of their work by leaving it as soon as possible each day, staying away from it over long week ends, increasing the number and length of holidays, and consuming habit-forming drugs to lower tensions and forget their troubles. (d) They are lured into cities, and once there are held like flies on sticky paper, by habit, poverty, and inertia. (d) They live in cities under high tension, overstimulated by proximity to other individuals, by sights and sounds, by constant movement, shift, and change. (f) They learn and practice the principle "every one for himself and the devil take those who fall behind." Thus they live their adult lives, caught on the horns of a frightful dilemma. Their ideals and ethical standards demand fraternity and neighborliness while in practice each is engaged in a perpetual struggle to get the better of his neighbor. This conflict between theory and practice confuses, dismays, frustrates, and finally paralyzes the individual by turning him into an embittered opportunist, cynic, and pessimist.

Acquisitive, mass production communities (a) concentrate wealth, and therefore power, in the hands of the greedy; (b) follow policies which are formulated by acquisitors; (c) exhaust their natural resources by converting them into nonessentials; (d) build a culture pattern around the principle that human happiness and well-being depend upon the abundance and variety of possessions; (e) sanction and encourage a competitive struggle for wealth and power, waged between individuals, between private social groups, and between governments and nations. This competitive struggle leads, on one hand, through accumulations of wealth and income, to economic unbalance, depression, deficit spending, inflation, and bankruptcy, and on the other hand, through artificially stimulated loyalties and rivalries to economic conflict, wars, destruction, and eventual extermination. While the acquisitive community pattern is being wrecked by competitive struggle, it is undermined by internal disintegration due to excessive mobility in the population and the overemphasis on acquisition. Mobility by breaking up families and neighborhoods weakens the basic building units of the social structure. Greed leads to corruption in the public service and to an emphasis upon individual enrichment at the expense of community well-being.

Perhaps the whole position may be summed up in a sentence. An acquisitive competitive social pattern produces unhappy individuals and unstable, self-liquidating communities. Such a conclusion does not mean that Proudhon was right when he wrote: Ownership is theft. Ownership has its uses, for individuals as well as for communities. At the same time antisocial uses of ownership restrict livelihood, develop inequality and undermine the entire social structure.

7. Individual Ownership

Ownership in a rationally organized economy will be partly individual and partly social. This formula holds for all economies, which differ only as to the relative proportions of the economy which are owned individually and socially.

Those aspects of the economy which are technically integrated and therefore inseparable into autonomous units should be socially owned and administrated. A highway or a telephone network is integral and cannot be divided into separate useful parts. A local strip of highway is all but useless. A single telephone instrument is a museum piece. If they are to give maximum service, highways and telephone systems must be group enterprises, jointly owned and managed for communal use and advantage.

Social ownership varies in character from a voluntary group of consumers holding equal shares in a co-operative store; a nonprofit corporation like a university, owning its buildings; a business corporation, owned by stockholders; a municipality owning

its schools, parks, and hospitals; and a state government owning and operating highways, power plants, railways, mines, and factories. In each of these instances the enterprise is essentially social rather than individual in nature. In each case the enterprise reaches its maximum usefulness through group participation in ownership and use.

Mass production techniques, the integration and consolidation of the economy, and population concentration in urban centers add to the group nature of the economy and thus tend to increase the area of collective ownership and operation.

Individual ownership continues, even in the most collective economies. Its basic formula: "It is mine because I need it." The need is personal. With personal need goes personal ownership. This formula applies to food, shelter, clothing, and other necessities. The wheat in the bread, the lumber in the house, and the cotton in the clothing may have come from a collective or state farm, and have been supplied through a co-operative store. At a certain point, however, these forms of group property lose their collective character and minister directly to the needs of an individual. At that point they become individual property. They cease to be "ours" and become "mine" because they supply my personal need.

Goods and services which the consumer needs vary in character with the individual. First, there are the simple necessities of physical survival. Second, there are the goods and services which custom, social pressures, and habit make desirable or essential. Third, there are the goods and services which add to personal efficiency, convenience, and comfort. Fourth, there are the goods and services which meet the demands of personal whim or vanity or which add to prestige. Among these goods and services some, such as food, are consumed at one sitting. Others such as houses, clothing, and labor-saving devices are used on more than one occasion. To all of these the same rule applies. If they meet the need of an individual and are consumed by an individual, they are the property of the individual who consumes them. Thinking in these terms, it is clear that the principle of individual property will become dominant at some point in the process of converting nature's stores into the goods and services which individual human beings consume.

There is a second formula which justifies individual ownership: "It is mine because I produced it." Especially in a use economy there are goods and services which are made available to the individual as a result of his own efforts. Food gatherers pick berries and fruits; woodsmen cut wood for fuel; cultivators prepare the soil, sow the seed, and harvest crops; craftsmen convert wood, stone, clay, and fibers into implements, and use the products of their own labor. In most instances the members of a tribe or household work together on such projects, but there are cases, in preurban communities, in which the individual produces commodities and consumes them.

A third justification for individual property ownership: "It is mine because I have the power to command the labor of others," lies at the basis of the exploitation of man by man. One man holds property titles, whether to land or capital. Another uses the land, paying rent (or interest) for the privilege. The job owner may therefore live, without labor, upon the unearned income derived from his job ownership. Property owners are not asked how they acquired their titles. The fact of their possession is a sufficient justification to allow them to live without labor on the labor of others.

The position of the job owner is secured by custom and law. He holds title to land, capital goods, patents, franchises, monopolies. Whether he gained possession of the titles by hard labor, double-dealing, fraud, exploitation, or inheritance is not made a subject of inquiry. Ownership provides him with a source of unearned income.

Wherever such a claim is recognized, the foundation is laid for special privilege. Resulting inequalities in wealth and income, coupled with the principle of inheritance lead to class distinctions and the ultimate division of the community into rival groups. Since no rationally organized community can accept such a possibility, it must reject all those forms of private ownership which threaten to establish division, conflict, and disruption.

Privately owned economies, carried on by competing profit

seekers whose major purpose is the accumulation of wealth, prestige, and power, have passed through a well-defined cycle of development, which includes (a) the enrichment of the individual and the establishment of a wealth-income differential in favor of the private owner; (b) the speedy concentration of this privately held wealth, prestige, and power in the hands of a self-perpetuating business oligarchy; (c) which uses its surpluses of accumulated profits to enlarge the area of its control by taking over the channels of public information and the agencies of government; (d) profit accumulation, on an increasing scale, leads to periodic gluts in the economy, with resulting business depressions, which increase in intensity and duration until they become chronic; (e) the alternative to chronic depression is government (public) intervention, in the form of concessions, franchises, subsidies, and eventually of outright gifts, which siphon tax money into the treasuries of insolvent businesses; (f) such antisocial procedures can be justified only by an appeal to patriotism, in which loyalty to profiteers and loyalty to the fatherland are merged into a unified pattern of nationalism; (g) competing groups of profiteers, using the apparatus of the state, conquer, plunder, and exploit weaker (colonial) peoples and fight wars to determine how the loot shall be divided; (h) as these wars become more destructive, they bankrupt and finally destroy the economies which support them.

Privately owned economies are therefore self-liquidating, either through glut and depression or through the diversion of wealth and income from production to destruction. A community interested in survival must therefore adopt an ownership pattern founded upon the principle that an economy must aim, not at private enrichment, but at communal survival and well-being, and that in order to ensure this result it must be publicly owned and administered as one aspect of public business.

8. Group Enterprise and Group Ownership

Individual enterprise and individual ownership have a place in an integrated, complex economy, dependent upon an advanced technology. But it is a minor place. If such a community is to survive, group ownership and group enterprise must dominate and direct the economy.

An integrated, urban, technically based economy is, of necessity, a group economy. Capital is secured not from an individual but from a group. Labor is performed by a group. A group of consumers utilizes the product. In no sense, except a legalistic one, is such an economy personal or individual. Its structure and its function are unquestionably collective.

Therefore, the economy must be regarded as a public enterprise rather than a private one. If, in the era before the rise of mass-production economy, men came to regard the building of highways and the operation of post offices as public enterprises, in this era of large-scale mining, manufacturing, transport, communication, merchandising, financing, and eventually agriculture, the bulk of the economy must be classed as public business. Once industrialized, they have become collective in fact and must remain collective so long as a mass production continues. It is only a question of time and necessity before they become collective in law. The trend in this direction is unmistakable. Corporate (group) ownership and management by a group of business executives have already replaced the individual capitalist and the individual entrepreneur.

If the economy is collective in fact the group which depends upon it for a livelihood faces a simple alternative. Either private ownership and direction will dominate the economy and therefore leave the community at the mercy of greedy profit seekers, or the economy will be regarded as one aspect of communal life, owned collectively and managed, like every other form of public business, by representatives of the collectivity and in the collective interest.

9. A Workable Ownership Pattern

Ownership is a factor of prime importance in any economy. The guiding principle in determining ownership is axiomatic. The economy must be owned by those who need its products and by those who are associated with it, either as producers or consumers.

Pretechnical economy based on hunting and fishing, animal husbandry and agriculture provided livelihood for such self-contained population units as enlarged households, tribes, and villages. It functioned, therefore, locally and on a use basis of self-sufficiency.

Since each local unit was self-sufficient, need, production, consumption, and ownership were limited by the area of the household, the tribe, and the village. In all of these social groups there were large and often predominant segments of collective or group ownership.

Economics relying upon mass production concentrated around towns and cities. They draw their raw materials and food supplies from widely scattered parts of the planet and market their output over equally wide areas. They are not local in scope, but international or planet-wide in their relationships. Hence the area of ownership must be enlarged to meet the enlarged area of economic function.

We are all familiar with ownership by persons, tribes, villages, cities, and nations. The conception "property of mankind" or "owned by the human family" is less usual. It is made inevitable by the development of planet-wide economic function.

When we say that in the era which is dawning, various aspects of the economy such as natural resources, means of transport, and communication, the facilities for exchange and the like will be communally owned (or collectively owned), it is necessary to add that the community or collectivity in question, in certain instances, will be the human family or the world community. Under such circumstances the word ownership will be associated with groups from households to humanity. Such an outcome is made inevitable by the structure and function of present-day technology.

Voluntary groups such as co-operatives and clubs organized to carry on certain social activities will own small segments of the economy. Likewise there will be individual ownership of the commodities and capital goods which provide for personal needs. The bulk of ownership will, however, be collective in the sense that it is vested in official bodies, delegated or directed to conduct the public business of the community.

CHAPTER 8 Uncertainty, Stability and Security

PRINCIPLE 8 *The economy should provide a stable, secure subsistence*

1. Economic Stability

Thus far we have discussed livelihood as though it were something concrete, like a piece of furniture or a suit of clothes, which once procured, could stand in the living room or hang in the closet, available to the user whenever he desired it. This conception, however, is too limited unless it includes certain elements of risk. The chair stands ready for use unless some inconsiderate person tilts back in it and breaks off a leg. The clothes are available until moths get into them and make them unwearable. Or the house may burn, destroying both furniture and clothing. Such so-called accidents do not occur to everyone everyday, but no day passes in which they do not disrupt the lives of some individuals, households, or communities.

Ordinarily we think of risk as highly personal to the individual or the household. It has many general aspects, however. Fire may spread from one house and wipe out a neighborhood. An earthquake may devastate a city. War may leave an entire countryside in ruins. Acts of nature, like acts of the public enemy have destroyed materials, disrupted social relations, and thus interrupted the even flow of goods and services from producer to consumer throughout the period of written history.

Against this background of experience human beings are not satisfied when provisions are made for today's livelihood. They are concerned, likewise, with the livelihood of tomorrow. It is not enough for them, even that their own lives should be reasonably secured. They also demand security for the members of their households. This human demand for livelihood certainty, confronted by the instability and insecurity which beset individual and community life, raises insistent problems in every economy.

Uncertainty plagues every economy because several unpredictable or unknown factors are present in every economic situation. One is nature. A second is the individual state of health and the duration of life. A third is the action pattern of other humans in the local community or in distant communities. Since any one of these factors may upset the livelihood pattern and since none of them is under complete human control, uncertainty is a factor with which every economy is forced to reckon.

Man answers economic uncertainty by taking the steps necessary to ensure social survival and individual security. Survival provides a community with a social environment which is continuous in time. It may or may not be progressively improved. Individual security enables the members of the community to exercise foresight in the ordering of their lives, and to gain the psychological and material benefits which accompany continuity. It is not enough to establish an economy as a going concern. It must continue to function if it is to provide a large measure of stability and security for those dependent upon it. Hence the desirability for reducing uncertainty to a minimum and for finding means to distribute residual risk, so that individuals and local communities are not crushed by circumstances over which they can exercise no immediate control.

2. Cooperation the First Requisite

Community survival and social stability are inconceivable in the absence of co-ordinated group action. Individual security is almost equally dependent upon division of labor, specialization, exchange of products over wide areas, and collective installations designed to deal with risk and uncertainty. Perhaps these factors may be grouped under the single word co-operation.

Co-operation is considered action in which the members of a group associate themselves according to a traditional, accustomed, or rational pattern. Each co-operator performs a task for which he has volunteered or to which he has been assigned. Each task fits into a pattern or design whose total result was envisaged before the group effort was made. Thus three men co-operate in moving a heavy stone or log. Fifty singers or instrumentalists co-operate in a chorus or orchestra. Members of various crafts co-operate in erecting a building, maintaining a telephone network, getting out a newspaper, or producing a typewriter. Results which an individual might achieve through herculean effort can be secured easily by a co-operating group.

A complex unit of the social environment such as the fire-fighting department is beyond the range of individual effort. It is possible only as the result of collective action.

What is true of the fire department is true of other aspects of collective life; they depend upon co-operation—voluntary or directed. There is no such thing as individual stability and security in a community based on a mass-production economy. Stability and security will be collective, or else they will be nonexistent. This generalization was written unforgettably into the history of Western man during the first half of the present century.

Competition, even when restricted by government controls, is a disruptive social force because it is a form of conflict. Unrestricted competition is continuously destructive of individual competitors and, in the long run, of the entire economy in which it exists. The sharper the competition, the more thoroughgoing the destruction.

Co-operation, on the other hand, is a stabilizing force. It tends to bring divergent elements of the community together and to unite them in the pursuit of a common objective. Co-operative techniques successfully worked out, protected by the eternal vigilance of the co-operators against aggression both from within and without, provide for individual security, social stability, and group survival. The problem of eliminating uncertainty from the economy therefore resolves itself into a program for effective co-operation.

3. Economic and Social Planning

A program for effective co-operation begins with a workable economic and social plan based upon a reasonably correct analysis of the social forces in play, a formula for co-ordinating and directing these social forces, an adaptability sufficient to meet and overcome the variable factors in the situation, and a leadership sufficiently experienced to persuade and guide its constituents into a course of action which will ensure fulfillment of the plans.

Social forces vary from one community to another. Variations occur in the natural environment, in the social environment, and in man's health, vitality, and outlook. Consequently, no two communities have precisely the same social problems. An analysis of the operative social forces must take into account both time and place. The analysis in terms of time will be general. That in terms of place will be localized. The general time analysis will be an aggregate of which the specific place analyses are component parts.

The formula for co-ordinating and directing the social forces will be similarly heterogeneous. While there must be an over-all formula to meet each situation, modifications of the formula are necessary for each community. In the absence of fluidity, the formula becomes sacred, the autonomy of the local community is sacrificed, and the social group is remodeled to fit the formula, instead of the formula meeting the needs of the community.

Nature, society, and man each embody unknown or little known variables. The economic and social plan must be sufficiently adaptable to cover variations in these three basic components of the social setup. Since the variables are more or less unknown, human reason, foresight, and adaptability are constantly pitted against uncertainty and contingency.

Economic and social planners must work out alternatives based upon time, place, and the shifting sand of ceaseless social change. This is a formidable assignment, one that will stretch the creativity, ingenuity, patience, and determination of the social engineer to the breaking point. Despite its manifold complexities and manifest difficulties, the planning must be attempted and carried through to a successful conclusion. Failure implies surrender of the partial control which mankind has established over nature, society, and itself, meaningless drift and eventual catastrophe due to shifts in nature or the clash of social forces which have got out of hand.

Economic and social planners face baffling difficulties. In the absence of certainty regarding the factors with which they work, they must formulate and elaborate a program which applied to a fluid social pattern will satisfy the multitudinous and often conflicting needs of the constituency from which they derive their authority.

Perhaps this last factor is the most baffling one confronting the economic and social planner. He is responsible to a constituency which provides him with his livelihood and which may accept or reject the program which he formulates. This constituency, in its largest aspect, comprises the entire human family. In detail it includes nations, peoples, neighborhoods, and households with a wide range of needs and wants.

Furthermore, elements of this constituency are in never-ending movement, turmoil, and conflict. The social planner takes on the task of reducing this social chaos to social order, and of persuading individuals and communities who have grown up in disorder to maintain and appreciate order.

Without a workable plan, mounting conflict, growing instability, increased insecurity, and possible or probable extermination face groups of human beings, from family and neighborhood to nation, empire, and world community. The more populous the society and the more interrelated its activities, the greater the necessity for planning and co-ordination. Communities based upon a highly developed technology, mass production, and mass marketing will make or break themselves in terms of the effectiveness with which they plan and co-ordinate the multiple factors in the social environment.

4. Areas of Planning

Normally the area of planning should be determined by the area within which a particular social function is concentrated. The word "area," as used in this connection, may refer to a geographical area such as a town or country, an occupational area such as steel manufacturing, or the training of doctors, or a social area, such as a group of users or consumers of clothing, newspapers, or cereal foods. The same person, family, or neighborhood may be involved in manufacturing, in an educational program, and in the consuming of cereal products. Hence social planning must be carried on within areas which cross, duplicate, and often conflict.

Normally planning should follow the area of function. Thus the city of Poughkeepsie, New York, plans its streets, schools, and parks. All three lie within the city limits, are city property, and are used by Poughkeepsie citizens. At first glance it would appear that the city fathers were planning a functional area.

Actually, however, the authorities of Poughkeepsie are planning geographically. Their control ends at the city limits, whereas the citizens of Poughkeepsie use highways, schools, and parks both inside and outside the city.

The city is a geographical planning area. As such it has the advantage of definitiveness in terms of space. Those responsible for the city and its inhabitants plan their work within that area as a housekeeper plans the activities of the household. The inhabitants of the house like those of the city live much of their lives outside its borders. Planning in geographical areas is based, not upon the flow of activity, but upon the need for spatial limitation as a basis for successful administration.

Household, ward, city, township, county, state, nation, empire are all geographical areas within which those in authority are responsible for planning and administering certain aspects of life. No one of these areas is self-contained, however. The household is part of a neighborhood, which is part of the city, which in its turn is part of the county, as the county is part of the state. Beyond each of these geographical areas there is a larger area of which the smaller is a part. Nor can we stop with nation and empire, because both are parts of the world community.

In so far as a geographical area is self-contained, it can be planned satisfactorily within its boundaries. In so far as a geographical community is dependent upon others, effective plans will be made by the authorities of the next larger area, or, if not entirely by them, then certainly in consultation with them.

Poughkeepsie, planless, would be disorderly, chaotic. But Poughkeepsie's plans for transportation, education, recreation, and the like will not be effective unless they are co-ordinated with those of county, state, nation, and world authority. Geographical planning area begins with the locality and ends with the world because human activity ranges from the household through village, city, state, and nation, to the planet.

Human life also functions in terms of productive or occupational activity. Here, again, the economic planning, to be effective, should be broad enough to cover the area in which productive activities take place.

Before the era of industrialization, economy, which was mainly agricultural and pastoral, functioned in local areas such as households, tribes, and villages. Mass production economy draws its raw materials from widely separated regions; fabricates its semifinished and finished products in numerous widely separated plants; depends heavily upon an elaborate, planet-wide network of transportation, communications, and finance; and finally markets its output at any point on the face of the earth at which a satisfactory outlet can be found. Each of these varied activities—extraction, fabrication, transport, communication, finance, and merchandizing, is indefinitely extensive, ranging from a single unit installation to a global network. Taken together they constitute a body of interdependent, international economic relationships. Planning for mass-production economy, at its highest levels, will be ineffective unless it is world-wide in scope.

Mass production, like every other type of economy, turns out goods and services for the use of consumers. In pastoral and agricultural use economies, the relation between herdsman and land worker and their livelihood was simple and direct. They and their families consumed what they produced. The products of a mass-production economy go into markets where they are apportioned among consumers in proportion to the consumers' ability to pay, or, at a more advanced stage of development, in proportion to need. The mass market, with its elaborate techniques of advertising, high-power salesmanship, and consumer credit carries an overhead of personnel and capital installations which were nonexistent in use economies.

Mass production proceeds on the principle of developing new commodities, creating wants for the new products, and then satisfying the wants. Mass marketing is an essential phase of this setup. Were it not for the mass market, there could be no mass production and no mass product. Thus the entire mass-production process, from the designing of commodities to their delivery to the consumer, is social rather than individual in character and is dependent upon making and executing effective social plans.

Another aspect of the consumer side of a mass-production economy is the social services upon which the economy depends. Three examples of such services are highways and bridges, the post office, and the telephone. Without transportation and communication facilities a mass-production economy could not function. The provision of such services is therefore essential to the survival of the economy.

Geographic areas, production (occupational) areas, and consumption areas of a mass-production society require careful foresight and preparation for their successful co-ordination and functioning. Similarly, the interrelations of geographical, occupational, and service areas require even more elaborate planning.

5. Budgeting and Accounting

Budgeting and accounting are closely associated with planning. Accounting provides the evidence on which plans are made and gives a check on plan fulfillment. The budget relates the long-term plan to the immediate requirements of the short-term situation.

Accounting is a current book record of an enterprise, including such details as are necessary to determine income and outgo, the relation of fixed capital to working capital, profit and loss, net worth, production and overhead costs, and other matters connected with the conduct of an enterprise. The simplest form of accounting is a cash book in which income and expense items are set down. More elaborate accounts make it possible for the management of a far-flung enterprise, such as a national postal system or a chain of stores, to know from day to day and week to week, what is going on in the branches and in the entire establishment.

Budgets deal with the future. They outline the program of the postal system, the chain of stores or of the entire economy for a shorter or longer period. They may be expressed in financial terms, or in terms of goods and services or both. The budget is a detailed project of the way in which a general plan or policy is to be fulfilled over a specified period. It includes items such as anticipated income and expense, proposed capital outlays, and programs of expansion.

Budgets bear somewhat the same relation to economic enterprises that the architect's blueprints and specifications bear to the plan of the building on one side and the work of construction on the other.

Each unit project in an economic enterprise is covered by a plan, a budget, and a set of accounts. If management is competent, those who are responsible for the enterprise plan its course over a long period, budget its development over a shorter period, and keep a book record of its activities and of its current status. The book record corresponds more or less closely with the plan and the budget, depending upon the knowledge and foresight of the planners and budgeters and the care with which they projected their knowledge over a limited period in the life of the enterprise.

6. Solvency

An economy is solvent so long as its available assets are sufficient to cover its liabilities, under normal or average conditions. Assets should also be adequate to provide for reserves and replacements, to make improvements and betterments, and to meet unexpected contingencies.

Another aspect of solvency has to do with the conversion of assets into a medium that can be used to meet the spot demands of creditors, if such demands should be made. Assets must be

fluid or liquid enough to meet both ordinary and extraordinary demands that may be made on a day of reckoning.

Also, in a limited sense, solvency is related to a surplus of receipt over expenditures, though deficits may be met out of working capital and solvency maintained provided that enough working capital remains to meet current needs.

Solvency is usually thought of in monetary terms. It has other and more important implications in the functioning of an economy. No matter what its cash balances may be, no economy is solvent which is depleting its reserves.

Economic reserves include (1) natural resources, with particular reference to soil fertility, forest cover, the water table, and the supply of irreplaceable minerals; (2) human vitality, which may be measured in terms of health of body, health of mind, strength of will, steadfastness of purpose, and capacity for disciplined living; (3) social stability and security, without which any economy is a storm-tossed ship on the ocean of history; (4) constructive and progressive social-policy objectives, without which it is difficult or impossible to relate current economic activity planning and budget making with the future of an economic enterprise.

Human beings are engaged in the task of securing a livelihood by converting nature's stores of earth, air, water, light, and energy into the goods and services which sustain and enhance life. If natural stores are progressively exhausted, if human energy, will, and purpose are steadily depleted, the community in which these losses occur is moving toward bankruptcy. Conservation of natural and human resources is not in itself a guarantee of solvency, however. Ill-conceived social policy, taking such forms as incompetence, indifference, dissipation, escapism, demagogy, and military adventurism may dislocate, upset, and disorganize an economy in short order. Military adventurism is perhaps the most spectacular aspect of social policy. Certainly none will more quickly and certainly destroy the solvency of an economy. Anyone who has lived through the first half of the present century must recognize the destructive role of military activity in pushing a solvent economy toward bankruptcy.

Solvency depends upon several factors: (1) balancing income and outgo; (2) providing for current needs; (3) conservation of resources and reserves; (4) avoidance of waste and destruction; (5) the maintenance of a constructive and progressive social policy.

7. Economic Change

Planning, budgeting, and accounting can perform miracles in stabilizing an economy, but they cannot make it proof against changes. In this respect the social scientist is confronted with a variant difficult to anticipate or even to measure. Only the historian is in a position to evaluate accurately the factor of change, which was present in particular social situations.

Stability and change are in a measure contradictory concepts. Stability seems best assured by the maintenance of the existing status. Change alters status and therefore undermines stability. Since change is present in every social situation, however, the seeker after stability and security must take change into account, estimate its extent, and make preparations to meet the developments which changes bring.

Changes in an economy are of various kinds. First, and most difficult to anticipate, are alterations in the natural environment due to earth movement, floods, modifications of climate and depletion of irreplaceable natural resources. Second, are alterations in the social environment due to man's deliberate efforts to invent, discover, improve, achieve. Human efforts at betterment have been responsible, in the first instance for building the social environment and in the second instance for its ceaseless remodeling. As building often involves tearing down the old before it can be replaced by the new, the effort for betterment modifies the social environment, and sometimes the natural environment, both negatively and positively. Men who cut off forests to build cities open the way for loss of topsoil and changes in climate. Third in this listing of change factors, are the alterations in an economy which accompany particular lines of social policy. Private profit accumulation, with its recurrent depressions, is one example. Militarism and military adventurism, with their resultant drain on the economy and their destruction of

wealth and human vitality and their upsetting of the social equilibrium are other illustrations. Fourth, and finally, are the little-understood, long-term cycles of economic advance and decline which appear as price movements, shifting levels of productivity, and eras of high exuberant activity followed by periods of economic quiescence, stagnation, or decay.

Against the forces of economic change, the individual is so minute and his life span is so short that he can do little more than move with the basic trends. This is the case in any human society. It is doubly evident in a community based upon mass production techniques.

8. Insurance against Risk

Economic uncertainties due to changes in the natural and social environment and to events beyond individual or social control can be dealt with effectively through the sharing of risk, the spreading of loss, and the maintenance of reserves adequate to provide for contingencies and emergencies. This area of the economy is referred to as insurance.

Insurance is almost wholly a social function. It is difficult for the individual to insure himself. It is easy for a social group to spread risk, share loss, and provide reserves to meet emergencies.

Insurance may be provided against almost any imaginable contingency, including natural events such as flood, fire, wind, hail, earthquake; against social events such as unemployment; against personal events such as sickness, accident, old age, and death. Insurance may cover losses to property such as ships, buildings, the contents of buildings, bank deposits, or it may cover losses of personal faculties. The mass production and use of automobiles has created a wholly new department of insurance including coverage for fire, theft, damage done to the automobile, and damage done by the automobile to property or persons.

Insurance may be provided by an individual, by a business corporation, by a co-operative, or by some department of government. In its earlier phases, it was a business, conducted like any other aspect of business for the profit of the enterpriser or the enterprise. Latterly it has been provided to an increasing degree as a part of the service which government owes to its constituents.

Usually the beneficiary of insurance pays a stipulated sum, and in the event of the contingency against which the insurance is written, receives a specified compensation for loss. In all cases, the principle is the same—loss is spread over a group instead of being concentrated on an individual. Consequently an event like the burning of a house, which might bring ruin to the occupier, is covered by the contributions of the entire membership of a co-operative which issued the fire-insurance policy. The fire loss may have amounted to thousands. But these thousands have been paid into the insurance fund by thousands of contributors, so that the actual cost per contributor is of no great consequence in relation to his means.

Presumably, in the future, insurance will be provided as a public service by public authorities, in the same way that they provide fire-fighting apparatus, public education, and public-health facilities.

Uncertainty is a normal aspect of life. Each day unexpected events bring hardship to individuals, households, and sometimes to much larger groups. Untoward events should not fall with crushing weight upon individuals. Instead, they should be assumed and carried collectively.

9. Stabilizing the Economy Is Public Business

The economy should provide a stable, secure flow of goods and services to its members. With a mass-production technology, the individual and the local community are equally at a loss to do this. Only highly placed policy makers, planners, and administrators can hope to deal with the large, complex problems involved in the stabilization of livelihood.

At what level must the policy makers, planners, and administrators function? In many instances, they can succeed in stabilizing economic relations only at the planetary level. Certainly this is true of the more generally used raw materials, of planet-wide transportation and communication, of world finance and credit, of the allocation of surpluses to the less developed areas. With

all possible concessions made to regional and local economies, reserving to them a maximum degree of autonomy, there will remain a wide margin of economic activity that will be planetary in its scope and which must therefore be administered on a planetary scale.

Any attempt to operate an economy based on present-day technology will meet with failure unless the area of administration is at least as wide as the area of function. This area of function having crisscrossed the planet in many directions, the area of policy making, planning, and administration must follow suit.

Experience during the past four or five decades points to the interdependence of all economies in certain vital respects. None can stand alone. All make up segments of a world economy. Rivalries between various elements in the world economy have led to friction, tension, and fratricidal conflict. The resulting disruption and damage to world economic relations is plain to every observer.

This is notably true in the matters of stability and security discussed in this section. Whatever division may be made between local, regional, national, and world control, the top-level relationships must be in the hands of a world authority. No other is competent to meet the ultimate problems in stability and security. The human family must choose between division, tension, and conflict, with their attendant losses, and a unified world economy, planned and directed in its essentials at the world level. At no point in the economy is this planet-wide need more obvious than in the area of social stability and security.

CHAPTER 9 Justice, Incentive, Responsibility

PRINCIPLE 9 *The economy must assure justice and provide incentive that will lead the individual and the social group to assume and carry a full share of responsibility for the production and apportionment of livelihood*

1. Intangibles in Economics

Economics would be a simpler science and art if it could be confined to objective and concrete relationships such as those involved in the conversion of soil fertility into nourishing food or in the transportation of iron ore to blast furnaces. But while subjective and intangible relationships are of secondary importance in grain growing and steel production, they top the list in any consideration of the entire field of livelihood. This is true because the purpose of economics is to provide a more abundant livelihood for a larger proportion of the population, and because the provision of abundant livelihood involves (1) the ideals and purposes of individuals and (2) the relations between human beings in the community.

Abundant livelihood cannot be determined without entering the preserves of sociology, ethics, and psychology. In each of these fields there are theoretical and actual norms of experience and activity. Every individual knows of these norms, whether or not he attempts to attain them. Individually and collectively, therefore, the entire community approaches its economic problems with a number of sociological, ethical, and psychological conceptions and habit patterns clustered around "the good life." These conceptions and habit patterns are intangible, yet they are the objects of abiding human beliefs, loyalties, and faiths.

Intangibles give direction and perspective to the livelihood struggle as they do to every other human activity. They provide the theoretical skeleton upon which are ranged the tissues and organs of day-to-day living. It is important, therefore, that the intangibles upon which we rely in formulating economic policy be sound in themselves and soundly tied in with similar intangibles in related fields.

2. Justice

Justice is a working approximation to decent and reasonable relations between human beings. Since we are discussing economics, we might add to the above definition the phrase "as they concern livelihood." Since justice involves an ethical way of looking at life, the definition which we have just given amounts to saying that the science and practice of economics are related to ethics.

The conclusion is inescapable. Every economic transaction involves relations between individuals or social groups. All human relations involve considerations of fair or just dealing and are therefore ethical in character. Therefore economic transactions raise questions of ethics.

Since man is a social being, his livelihood relations extend from family, clan, and village to wider social groups. Especially is this true in a power age, with its search for raw materials and markets, its extensive means of transportation and communication, its concentration of wealth and power in a few centers, and its ceaseless interchange of people, goods, and ideas. If abstract considerations of justice and fair dealing grow in proportion to the number and complexity of human contracts, it follows that they should be notably prevalent in an age of mass production and world-wide interdependence.

No matter how alluring or how lucrative an economic opportunity may be, it cannot be accepted unless its ethical implications will pass muster. Each valid economic transaction must meet the accepted requirements of fair dealing. Unless economic relations and transactions are founded upon justice, sooner or later they will upset the applecart of community life.

What is meant by justice? History and contemporary experience give a variety of answers. Indeed, research among diverse peoples shows that every human group has at least the rudiments of an answer to this question, and a study of the social relations among animals makes it seem probable that there also codes of justice are set up and maintained by community action.

Every group of human beings has its code of fair practices. Although no two codes are precisely alike there is a degree of uniformity among them. One of the most universal is the code dealing with hospitality. There is also a measure of agreement on the idea that two wrongs do not make a right. Similarly the principle of the golden rule—do as you would be done by—has a large measure of acceptance.

Codes of justice and fair dealing are accepted and enforced by the group. Even when their origin is ascribed to superhuman authority, enforcement is a group function.

Four types of relationships involving ethical considerations have a direct bearing upon economic activity. (1) The relation between two citizens of the same community with regard to property, contract, and tort. (2) Similar relations between citizen and foreigner in the home territory. Except in time of war, the foreigner who is interested in economic transactions is usually dealt with as though he were a citizen. (3) Relations between citizens and foreign territory.

Native-foreign relations are various. Between powers of relatively equal strength, equality of treatment has tended to prevail. But between the strong and the weak, the accepted code has permitted the strong to conquer, expropriate, and subjugate the weak on the theory that "they may take who have the power." It was upon this formulation that nineteenth-century empires exploited resources and labor power in colonial areas. European empires grew wealthy by looting, enslaving, coercing, and exploiting Asians, Africans, and pre-white Americans. Sooner or later, however, the colonial peoples revolted against the injustice of such relationships.

As the planet is more and more closely bound together by economic and other ties, it becomes more evident that human beings are members of one community. There are therefore no foreigners or natives, only close and distant relatives. Thus the justification for a dual code disappears and men emerge as co-workers at the common, co-ordinated task of gaining a livelihood.

A fourth relationship remains to be considered—that between the group and the individual, whether citizen or stranger. In theory as well as in practice the group, as represented by the government of village, city, county, state, and nation, has a wide-ranging authority over the livelihood of the individual. Government may (1) restrict and regulate economic activity; (2) incarcerate the individual and thus cut off his chances of making a living or using his property; (3) regulate the use of property; (4) restrict movement and migrations; (5) tax the person or property of the individual; (6) seize the property of the individual; (7) provide the individual with economic services, grants, subsidies, bounties, and other economic privileges; and (8) provide jobs, contracts, and their sources of income. Examples of all these relations may be found in every civilized community.

1. Restraints on economic activity. Licenses are required in many occupations—barber, nurse, doctor, plumber, electrician, merchant. Hours, age, and sex of workers and working conditions are prescribed. Zoning laws restrict the area in which certain occupational activities may be carried on.

2. Imprisonment. Large numbers men and women are confined in prisons and concentration camps and thus deprived of the possibility of continuing at their accustomed occupations. This condition exists in every civilized community. Meanwhile, governments prescribe the food, clothing, and living conditions which the imprisoned person must accept under threat of punishment in case of refusal.

3. Regulations on the use of property. Building is zoned. Building permits are required. Mechanical appliances such as elevators are inspected. Buildings may be condemned as unsanitary or unsafe. Property laws permit owners to hold property out of use and deny to the propertyless the right to make a living by cultivating or building upon unused property.

4. Restrictions on movement and migration. Some occupations and some geographic areas are more attractive than others. Government restricts movement into certain occupations by requiring examinations. It likewise restricts and denies geographical movement, particularly across frontiers.

5. Taxation. Head taxes, income taxes, occupational taxes, nuisance taxes, sales taxes, and property taxes are imposed by government upon individuals. The power to tax includes the power to destroy. Any tax if set high enough is confiscatory. That is, it prevents the individual from engaging in the occupation, buying or selling the goods, or continuing to hold the property.

6. Seizure of property or person. Government may take property under the right of eminent domain. They may conscript the person under the plea of a public emergency. In either case, property and person pass under government control and may act or be used only as prescribed by those in authority.

7. Provision of economic services, subsidies, grants, bounties, and privileges. Community services include streets and highways, schools, libraries, hospitals, recreation centers. Social services include unemployment and sickness insurance, old age pensions. Tariffs and trade restrictions provide subsidies. Taxes may be remitted on business properties. There are tax refunds. Subsidies and bounties are paid to hunters and businessmen.

8. Jobs and contracts. Government is the largest buyer of labor power and the largest purchaser of materials. Government frequently collects from a fifth to a third of the national income in taxes. In addition, government may issue money and accumulate debt. Government income, from whatever source, is used to pay salaries and to purchase property and equipment. Numbers of individuals depend directly upon government for wages and for the sale of their property and products.

In all of these relationships the group is strong enough to impose its will, by force if necessary. In all, the individual is too weak to meet the group on its level of strength. The individual must either yield to group pressure or else resist and endure the

punishment, up to and including the death penalty, which the group may impose and enforce.

Can there be justice in such an unequal relationship of strength and weakness? Only in so far as government concedes to the individual certain rights which customary practice, legal provisions made by the government, or constitutional guarantees prescribe. Individual livelihood is always at the mercy of governmental action. In such a situation the individual can get justice (1) through the restraint or magnanimity or political astuteness of those in authority; (2) through an appeal to his legal and constitutional rights; or (3) in so far as he, individually or collectively, can bring to bear sufficient pressure to modify the actions of government.

Injustice in economic relations leads, sooner or later, to social instability. The maintenance of social stability therefore depends, in the first instance, on the restraint exercised by those in authority. This is notably true when public policy is determined by a monarch or an oligarchy. Social instability is inevitable unless the humblest citizen can challenge the community and get a hearing before a group of his fellow citizens as to the justice of his case.

Advances in science and technology have concentrated power in the hands of authority and have thereby added strength to an already powerful community, thus providing circumstances under which tyranny and despotism are more probable than justice and fair dealing.

Here in outline is a working program designed to meet such a situation—a program intended to provide a maximum of justice under power-age circumstances.

3. A Working Formula for Justice

If justice is an approximation to reasonable and decent relations between human beings and social groups, it follows that the quality of the relations will vary as well as the numbers of persons who enjoy the advantages of fair dealing. Thus the extent of reasonable and decent human relations would vary from time to time and from place to place, depending upon the attitudes and actions of those exercising authority and of those over whom authority is exercised. The maintenance of reasonable and decent human relations (of justice) rests in the last analysis upon the conduct of the human beings involved in the given situation.

Whatever the outlooks and attitudes of human individuals and social groups, both those in authority and those subject to authority are concerned, on one hand, with the community. The rights of each individual must be respected and protected to the fullest extent compatible with the rights of other individuals and with the necessities and requirements of the community as a whole. Justice lies somewhere in the no man's land between individual rights and community well-being and survival.

These relationships are institutionalized in the federal formula: local autonomy in matters of local concern, issues involving two localities decided by an authority in which both localities are represented, central determination of policy, and central direction of practice in matters of general concern. Local autonomy stimulates initiative. Central authority assures order. Reasonable and decent human relations must arise when local autonomy and central authority are both respected.

Justice in economic relations requires that the individual and the locality shall be responsible for making an efficient contribution to productive effort and to the maintenance of a stable and secure livelihood. At the same time the central authority should see that the sum of goods and services available during any given period is apportioned among localities and individuals in accordance with their needs, and that reasonable and adequate steps are taken to provide and ensure a stable and secure supply of goods and services.

Property codes in the past have created and maintained wide differences in wealth and income, without any reference to the needs of property holders or those without property. Reasonable and decent human relations require a more just formula for the apportionment of livelihood.

4. Incentive

Human activity is determined in part by incentive—a motivating or driving force which impels the individual and the group to overcome inertia and to adopt a pattern of feeling, thought, and action. In the absence of incentive, the human being and the community decay and disintegrate. Under its pressure individuals and communities are stimulated to plan, venture, produce, construct, and create.

First among human incentives is the drive or will to live. What is this will to live? We do not know any more than we know what electricity is. The will to live is part of the life impulse. Its effects appear among plants, animals, men. Wherever life exists, there the will to live pulses, incites, impels. Men can no more escape the will to live than they can escape life itself. Human beings are alive, which is another way of saying that they are under constant pressure from the will to live.

From infancy to old age, the will to live manifests itself in human conduct, making men unceasingly and sometimes perniciously active. A "normal" child or adult is one in whom the will to live is expressing itself constantly and in many directions. The will to live is therefore one of the aspects or attributes of human nature. It continues to urge and drive the individual to action as long as breath remains in the body.

Turn from this expression of the primal life impulse and ask two questions: to live, for what? To live, how? These questions introduce two factors—motivation or purpose and means or methods of procedure—into the problem of incentive.

The direction of the life urge and the means employed to move in a particular direction vary from person to person. Some individuals seem to be born with a life purpose and with an ability to discriminate between means which will advance or retard that purpose. Often in childhood they select a career: "I am going to be a doctor"; "I am going to be an engineer." And in many instances they stand by their decisions and become eminent in their chosen professions. Others make an emphatic decision in their teens or after they have become adults, and stick to it with equal tenacity. Such individuals are driven by a fixed idea. They may be geniuses, fanatics, even maniacs. But the motivating force which impels them to action exists within them and drives them in a definite direction.

There are only a few geniuses. In most human beings the will to live lacks any such specific implementation. For them the purpose and means of living are provided by the social environment. It is social pressures which determine the application of the life urge to the problems of livelihood. Social pressure directs children toward respect for elders; toward the accepted patterns of games and sports; toward a minimum of education; toward domestic chores and some type of gainful occupation; toward the assumption of family and civic responsibility. Response to these pressures varies with the individual. But all "normal" individuals respond sufficiently to carry on the accepted social pattern from one generation to the next. Indeed, the willingness to do this is the generally accepted test of "normality." Those who reject the pattern or who try to modify it are usually considered abnormal or queer.

Particular incentives employed by communities to arouse individuals to action cover a wide range, from negative personal drives such as fear and hatred, through positive personal drives such as the desire for personal gain, the love of comfort, loyalty to family and friends, yearning for social recognition and approval. One or more of these incentives may be seen operating in the family, the neighborhood, the city, the nation, and in a multitude of private groupings and associations.

Fear, hatred, jealousy, vengeance are among the most powerful forces that animate human beings. Their efficacy may be observed in any social grouping from family to nation. They are introversive, rather than extraversive, driving the individual back upon himself. They lead to anxiety, result in tension, and are therefore corrosive and disintegrative. In the long run they corrode and disintegrate the community as well as the individual.

There are two other groups of introvertive incentives. One is associated with acquisition; the other with escapism.

Incentives, usually described as economic or acquisitive, include the desire to secure current subsistence, from necessaries to conveniences, decencies and luxuries, and the desire to amass

wealth for its own sake—the miser, the collector, the accumulator. The acquisitive urge is not universal among human beings, since some primitive peoples do not seem to feel it except in its most elementary forms. In civilized societies, however, under the pressure of ceaseless conditioning, it has become a potent stimulus to activity.

Acquisitive incentives have as their immediate objective the accumulation of goods, land, money, and the title deeds which symbolize ownership; the comfort, convenience, and luxurious living associated with incomes above the level of necessity and decency; and the parasitism which accompanies and follows control of the sources of unearned income. While it is impossible to measure such relations accurately, social scientists have reason to believe that of all economic incentives, the lust for gain, which speedily becomes greed, and the hope to accumulate property, which connotes both wealth and power, are the most all-embracing and most continuously effective of those to which power-age man is subject. Certainly they have held a dominant place among the motivating forces which have driven modern man to his meaningless excesses of wealth accumulation.

Acquisition is an incentive which operates in the lives of energetic, ambitious humans. Those who are less energetic and ambitious soon drop out of the race for acquisition, and are usually lured by creature comforts and drift into the backwaters of imitation, conformity, and parasitism. Lacking in energy and ambition they avoid the struggle to acquire and accumulate wealth, enjoy the comforts, conveniences, and luxuries which come their way and devote themselves to pursuits which enable them to escape and forget. Movement, change, variety, excitement, diversions, amusements, gluttony, sex indulgence, and the use of habit-forming drugs absorb their energies and clutter their lives.

5. Extraversive Incentive

Side by side with the group of incentives which we have described as introversive, or concerned primarily with satisfying the needs of human personality, is another group which may be called extraversive or concerned with the requirements of the individuality. The first incentives which we shall list in this group are the desires for expression in the sciences, arts, and crafts—the urge to seek out truth, to create harmony, to express beauty. Scientists, sculptors, painters, poets, musicians burn with a creative drive which carries them through years and decades of ceaseless endeavor to communicate their conceptions or to embody them in some concrete pattern. Craftsmen are often equally absorbed by the desire to do good work.

Paralleling the urge to create and express in their chosen mediums is the urge for quality in expression, for excellence, for perfection. The drive for excellence easily becomes a "whole loaf or none" attitude which is impatient of concessions and abhors compromise. Creativity and the cult of excellence or perfection are not necessarily linked together, but they frequently are associated in the same person.

Men and women who devote their lives to creative pursuits, and who refuse to be satisfied with anything less than the best performance of which they are capable, are rated as having talent or genius. The combination of high qualities which passes as genius is rare in any population. At the same time it must be remembered that the desire to create and to do it well is widely distributed. A group of adolescents, a population released and aroused by a revolutionary situation, a group under the pressure of overwhelming disaster finds among its members individuals who display a greatness in action of which heretofore they never dreamed. Under placid, comfortable conditions of living such persons would have been content to lead commonplace lives. The urgency of events lifted them to higher levels of vision and led them to embody talent in concrete forms.

The infrequency of talent or genius in the population presumably represents the different levels of individual development. The much wider distribution of an urge to creativity and perfection in expression argue as yet unrealized potentialities existing in the population at large. Both factors indicate the presence, in a small but important human minority, of positive incentives of far-reaching importance in modifying and directing the course of human advancement.

A second combination of extraversive incentives includes group loyalty, the desire to be of use to others, the wish to serve, and the willingness to renounce immediate personal advantage in favor of communal need. These urges are so widely distributed in a human community as to be called universals. They may be found operating in families and neighborhoods and in larger aggregates up to the level of peoples, nations, and of the human family. They are met with in every associational situation. They influence conduct at every age level, from early childhood to extreme old age.

Third among extraversive incentives are the urge to goodness, virtue, righteousness, and moral and ethical excellence. These incentives, like those associated with loyalty, are widely distributed through the population. Their potency varies from one individual to another.

Fourth among extraversive incentives we list sensitivity, sympathy, love, and understanding which identify the individual with fellow humans, with fellow creatures, with nature, and establishes a feeling of at-one-ness, unity, or totality which absorbs the individual into the larger whole.

We have listed creativity, loyalty, goodness, and love among extraversive incentives despite the fact that they function largely outside the field of economics. We cannot ignore them in our analysis of economic forces, because in their universality they include the struggle for subsistence and are among the potent motivating factors which have been responsible for building the varied and complex power-age environment in contact with which we gain most of our life experiences.

6. Social Approbation

Acquisition reaches out from its primary association with goods and services which provide subsistence, to those relationships which raise prestige and augment power—social recognition, acceptance, approval, approbation, applause, and social selection for leadership.

Human beings are gregarious. Their desire for association with fellow humans carries with it the wish to belong, to be wanted, to have a secure place in the affections of other members of the group, not to be different, to conform and therefore not to deviate, to discover the intricacies of the social pattern and to fit in with them, thus avoiding disapproval, ridicule, scorn, hostility, and perhaps exclusion from the social group. The economic man of eighteenth–nineteenth-century economists was pictured as a bundle of acquisitive urges. Socially grounded incentive was overlooked as a factor in determining his attitudes and shaping his life. Twentieth-century developments in psychology, anthropology, and related fields have led to a revaluation of incentive and perhaps an undue emphasis on the role of social motivation.

Desire for prestige is a second area of the search for social approbation. No social group is a uniform aggregate. On the contrary, it is a hierarchy composed of various levels of social recognition. Recognition and approval are not bestowed in equalitarian fashion. Each accepted individual must find his own level in the social group. Those who succeed in this field of human endeavor are surrounded by a wide circle of acquaintances and supporters. Their words are read or listened to, their pictures are treasured, they are courted, flattered, idealized, followed. They live in the warm rich sunshine of social approbation.

Those who fail, on the contrary, live in the shadow of social oblivion. Their acquaintances are few. Their following nil. If they want recognition, they must attach themselves to the crowd that is applauding their successful rival, and be noticed only because they applaud him more vociferously than others.

There are three chief ways in which social prestige may be established. The first is through some outstanding trait, capacity, or quality. A beautiful woman, a strong or fleet athlete, a successful writer, a clever inventor, an eloquent speaker, an appealing singer or actor attracts attention by the outstanding quality of performance or contribution.

The second way in which prestige may be established is through association with the successful inventor, writer, or singer. To be a member of the family, to be a friend, to have gone to the same school, even in some cases to live in the same town or neighborhood calls public attention to the so-fortunate individual. For many years, after, say 1880, any man or woman who knew Abraham Lincoln could get a story in the newspaper merely on the strength of that fact.

The third way in which social prestige may be established is through social designation, selection, or election, as, for example, the president of a union, the mayor of a town. Even though the mayor may be an appointee who is merely accepted by the community, he enjoys prestige as a result of his designation.

Prestige is enhanced by the use of insignia. A uniform, a badge, a title marks the prestige level upon which the individual stands. Equally, the house or district in which one lives, the associations, the societies and clubs to which one belongs, the houses at which one is received, the people one knows, all announce to the world the prestige level which a person has attained.

Beyond recognition and position or station in the social hierarchy, there is a third area of social approbation—the area in which one member of a group may utilize the energies of other members of the group, may determine group policy, and may speak in the name of the group. This third level is that of power, and is occupied by the group leaders. Among the subjects of top-ranking importance in their field of social science, none is less understood than the nature of power and its connection with leadership on the one hand and followership on the other.

Power, to the social engineer, arises out of the relationship between those who exercise authority and those over whom it is exercised. It is the means whereby the policy-making minority in a social group mobilizes, dominates, and directs the energies of the majority. The theme is related to our study of economics because recognition, prestige, and power are as integral a part of public relations, leadership, and policy making in the economic field as they are in every other field of community life.

Getting things done, in any department of social engineering, involves the establishment and maintenance of a social-control pyramid with leadership at the apex, followership at the base, and between apex and base an indeterminate region occupied by those individuals and agencies which keep leadership and followership in contact with one another. The occupants of this intermediate region play a role similar to that of the subordinate officials in a modern industry. At the top of its pyramid are the policy-making executives. At the bottom are the wage and salaried rank and file. Between is a body of managerial and technical personnel whose task it is to translate policy into action on the one hand and on the other to convert materials, machines, and skills into goods and services. Those at the top symbolize and exercise power. Those below transmute power into particular actions and specific products.

Recognition establishes prestige. Prestige is the foundation of power. The outcome of social approbation is likely to be power. If those who have gained social approbation are willing to exercise power, they must accept responsibility for leadership.

7. Power, Responsibility, and Leadership

Responsibility is the key to the successful operation of any large or complex activity. Size and complexity both add to the difficulties involved in the functioning of a social enterprise. Small units, such as households, may be directed by single individuals. Larger units depend upon co-ordinating the activity of many individuals at various levels.

Each individual or team or department must assume responsibility for its share in the total function of the enterprise. The failure of one unit in a co-ordinated whole to perform its allotted task will throw the entire enterprise out of gear, as the breakdown in one part of a complicated machine makes the entire machine useless.

Each unit of an interdependent activity must combine two contradictory attributes. On one side it must be capable of sufficient independence to carry on its allotted task to a successful conclusion. To do this it must take the responsibility, not merely for carrying out certain designated operations efficiently, but it must be prepared to meet emergencies arising out of imperfections in materials, failures, and breakages in tools and machines and unevenness in performance due to the ups and downs of human temperament. Each unit in a social operation must be capable of a high degree of independence or self containment.

At the same time each unit must be capable of an equally high degree of subordination to or dependence upon policy makers on

one hand and its immediate associates in the enterprise. Handicraft economy requires the craftsman or craft team to perform a series of operations and perhaps to carry through all of the operations involved in transforming raw materials into finished products. Industrialized, complex, mass-production operations, on the contrary, assign one or a very few operations to an individual or team of workers, rely for many individual operations upon more or less automatic machines, and then pass on the partly finished product to another machine or operator or to an assembly line on which the various parts are brought together into a finished product.

Craft work depended upon quality of workmanship. Mass-production techniques depend upon accuracy of dimension, timing, and movement for their effectiveness. Quality of workmanship depended largely upon the skill of the craftsman. The successful operation of an assembly line is the result, primarily, of the organization and management of a plant, industry, or of an entire economy. The transformation of the economy from craft to mass production has therefore sharpened the distinction between leadership and followership in economic activity. In a craft economy there were masters, journeymen, and apprentices, all functioning within the narrow range of a single workroom, household, or small factory. A mass production enterprise may extend over thousands of miles, cross frontiers, employ tens of thousands of specialized workers, be divided into many departments and divisions, and serve millions of customers in a planet-wide market.

Under such conditions of magnitude and complexity, the relations of economic leader and follower assume virtually the same importance as they do in a large and complicated military organization. In fact, there is a close organizational parallel in this respect between a mass industrial establishment and a mass military establishment. Each is a pyramid of power. At the apex of each pyramid are the few who make policy and issue directives. At the base are the rank and file who carry out orders and get results. Between are the managerial and technical subordinates who serve as the connecting link between those above and those below.

8. Economic Leadership

Leadership plays an important role in every large, complex coordinated social grouping. Nowhere is competent leadership more necessary than in a mass-production economy.

Economic leadership has six aspects which we will list, without examining them in detail. (1) Organizing or setting up the enterprise. Assembling the plant, the personnel, the needed materials, the market. (2) Determining what the enterprise is to do and how it is to be done. Formulating general policy. (3) Implementing policy. Plans, designs, blueprints. (4) Supervision, direction, inspection. Getting out production, maintaining quality. (5) Coordination of this enterprise with others in the same field, with related enterprise, with the entire economy. (6) Public relations. Contacts with sources of supply of materials and man power, with users or consumers of the product, with enterprise in other fields. Successful performance in any aspect of large, complex economy depends upon the effectiveness with which these six fields are covered.

Who shall lead in working out the problems of an economy? The question answers itself. Leadership should be in the hands of those who are best qualified.

How are such qualifications to be determined? To this question the answers vary. The easiest test to apply is the test of specialized skills. An accountant, for example, can discuss the theory behind his trade and set up, examine, and evaluate accounts. An industrial engineer may be asked to draw plans, submit designs, and meet concrete problems as they arise in the production line. In such fields examinations in the field of theory, and performance in the face of practical problems will go a long way to determine competence. Capacity for personality adjustment and ability to function can be determined only in the light of experience.

Initiative, capacity for organization, the imagination required to formulate general policy, willingness to adventure in making decisions, and the courage necessary to assume responsibility and delegate authority—these are qualities which cannot be gauged by answers on an examination paper, but must be determined in the light of experiment and experience. There is no single way of determining leadership qualities and capacities.

Who is to pick leaders? We know that ancestry is not a reliable criterion. It is equally certain that training will not produce leaders unless the requisite capacities are present. Seniority is not a dependable test. Election by ballot is more likely to turn upon popularity than upon competence. Perhaps the most satisfactory means of selecting leadership is to combine selection by ballot of top policy makers, appointment by them of their advisers or "brain-trusts," and selection of technicians by competitive examination and practical demonstration.

Having determined the methods of choosing leadership, the next problem is to check its performance. A top policy maker such as the governor of a state or the president of the United States is selected because he advocates policies which have the approval of the electorate. But suppose the elected official changes his mind, or proves incompetent or sells out. If it is true that the exercise of authority tends to corrupt those in office, the presumption is that the public servant will not fulfill the expectations of those who selected him, even though he is competent to do so. Consequently he is presumed to be recreant to his public trust until he proves otherwise. He who dons the mantle of authority shoulders the burden of proof. The electorate must presume that the exercise of authority is corrupting their public servants except in so far as the public servants are able to prove the contrary in their day-to-day conduct of public affairs. The leader is guilty until he proves himself innocent (competent). This is a grave burden for anyone to carry. Yet it is a burden inseparable from leadership.

How is the leader to be replaced once he has been judged incompetent? He may be removed for cause by a board or jury of his own profession. He may be judged corrupt under the criminal code. He may be voted out by a plebiscite among his constituents. He may be overthrown by public protest, demonstration, revolt or revolution.

Confidence in leadership is an indispensable element in the success of any enterprise. Where confidence is present human beings will toss off herculean tasks. Where it is absent, loyalty flags and performance drags. It is therefore of the utmost importance to establish and maintain a leadership which can hold the respect and affection and command the loyalty of its constituency.

Part of the answer lies in the integrity of the leadership. If the leader is above reproach he has a good chance to preserve the loyalty of his constituents.

Another part of the answer lies in the maintenance of sound public relations. There are two ways of doing this. One way is for the leader to create the widest possible differential in his favor, to make himself an immortal among mortals, to hold aloof from the common life and by so doing maintain his ascendancy by erecting a barrier between himself and those below him. Thus separated and elevated, the leader will be revered, feared, and followed. At the other extreme, the leader will maintain the common touch, remain a man among men, and rely upon competence, sympathy, and fellow feeling to continue his leadership.

CHAPTER 10 Freedom and Opportunity

PRINCIPLE 10 *The economy should provide freedom and opportunity for the growth and development of successive generations of human beings*

Through most of this study of the principles of economics, we have dealt with problems directly related to subsistence. In the two preceding chapters on "Uncertainty, Security, and Stability" and "Justice, Incentive, and Responsibility," we turned our attention to the relations existing between the economy and other aspects of man's struggle to live and improve the conditions surrounding his existence and thus, eventually, to improve himself. The present chapter goes even further afield, to deal with freedom and opportunity.

This is not an apology, nor is an apology in order for such a procedure. As we have stated previously, the economy is one department or aspect of social life. Since social life has other departments and since all departments, co-ordinated and interrelated, make up the sum total of human experience, it is necessary at some point in the study of any one department of social science to examine the relations which exist between that and other departments. Otherwise it will be impossible to gain an understanding of the entire society of which the economy is but a part.

Viewed from this angle, the present chapter is aimed to give perspective and a sense of proportion. Perhaps we might describe it as an orientation chapter, since it is designed to relate the economy and economic effort to the far larger field of human purpose and human destiny. We have headed the chapter "Freedom and Opportunity" because all members of the human race are seeking conditions which will permit them to enlarge their well-being. To this end the economy can make and should make significant contributions.

Before we can discuss the contributions that the economy can make toward the enlargement of freedom and opportunity, it is desirable to form some idea of the purposes to which freedom and opportunity will be put. Such considerations lead us to ask ourselves why human beings are on the earth, and what contribution they can make toward promoting human purpose and fulfilling human destiny.

1. Individual and Group Destiny

Destiny is a word that has never been popular among Western peoples. It smacks too much of a determinism which the West has tried to overcome by taking things into its own hands, formulating its own purposes, and trying to pursue them by the trial-and-error methods generally called scientific. Scientific deductions are based on observations, and observations are limited by the range and accuracy of human sense organs and the implements at their disposal. Trial and error, with its technological consequences, has done wonders but only within the limitations which members of the human family are compelled to accept.

Human beings are of a certain height, weight, and strength. They can sustain certain atmospheric pressures. They see, hear, and feel certain rates of vibration. They have emotional and rational faculties. Up to certain points, in these various directions, human beings can go. When those points are reached their powers of observation, analysis, and synthesis will go no further in that direction.

Ranges of human observation have been enlarged, accuracy has been increased, and means of recording have provided a history which can be studied and from which conclusions may be drawn. While the range of observation has been enlarged and the means of recording, comparing, and checking have been improved, they reach a point beyond which men at a given stage in the development of capacity, knowledge, and wisdom cannot go.

Another fact should be noted. The capacity for observation, analysis, deduction, verification, and implementation varies widely from the idiot at one end of the scale to the genius at the other end. Man's capacity to know and to act is therefore limited objectively by facilities and subjectively by capacities.

Within these limitations man has his frame of reference. He can modify the frame. Eventually he will enlarge it. But after each modification or enlargement a new frame of reference exists outside of which, again, man cannot function. The limitations imposed by the frame of reference are examples of man's meeting with destiny—so far you can go, but here for the present you stop!

Destiny may be considered from another angle. Man comes into the world an infant. In the course of the next twenty years, if all goes well, he will mature, grow up. The growing-up process may be modified by experience, but grow up he must if he continues to live a normal or usual life. Here the limitation (the destiny) exists, not in terms of range, but of a sequence or process through which the individual must pass.

Take a third example. A child decides to follow a musical career, but he is tone deaf. A companion, with the same ambition, has an accurate sense of pitch. The former will never be more than a mediocre musician. The latter may become a musical genius. Human capacity sets limits upon human achievement.

Here are three examples of limitations to which all human beings are subject. They are born, pass through a life cycle, and die. Presumably they could not avert birth and they cannot prevent death. Their lives are lived subject to light, sunshine, air, water, temperature, vitamins, minerals, and many other facts of nature. Men did not determine these limitations. They were born into them and live subject to them. Without food for three months, without water for three days, without air for three minutes, humans stop living. These limitations comprise a sort of negative destiny, an imperative "thou shalt not."

Men are also subject to a positive destiny, a "thou shalt." The most obvious expressions of this destiny are the will to live and to perpetuate life, survival and reproduction. Other expressions are the search for beauty, for justice, for righteousness, and the unquenchable thirst for adventure, innovation, knowledge and understanding.

If we turn from man to the quadrupeds, birds, fishes, insects, to the trees and the many smaller forms of vegetation, to the cells, the molecules, and perhaps even to the atoms, we find the same pattern, a "thou shalt not" from without and a "thou shalt" from within. If we could study planetary chains and star clusters intimately, we might find the same principle expressed in different terms.

Creative urge, sequences of growth and unfoldment, the will to live, perhaps being itself, comprise a pattern of changes, unfoldments, progressions, an evolution of being, form, and function, which is DESTINY, writ large.

Within this immensity each unit has its place and plays its allotted part. The human race is such a unit, among many aggregates of life. Each human being is such a unit among a multitude of other human individuals, associated together in many groupings.

We humans do not know the purpose for which our corner of the universe was established and is sustained and maintained. We do not even know the purpose of human life, though we can speculate in both directions. What we can assume is that in this ordered, evolving universal pattern, the human family and its individual members serve a purpose, that this purpose with its multiple manifestations constitutes the framework of human destiny, and that to the utmost of our capacity we must strive to understand and realize that purpose and thus fulfill the destiny.

If these assumptions are correct, the individual and group efforts to participate in the universal process are important elements in individual unfoldment and group evolution. Here is a frame of reference within which the human individual and the human family must fulfill their purposes and work out their

destiny. Here also are the general directives for the planning, organization, reshaping, improvement, and administration of the social environment, and of its varied parts, among which is the economy.

2. Human Personality and Human Achievement

This freehand sketch of the destiny surrounding and animating human beings provides a background against which we can go into some detail concerning the social environment, including its livelihood aspect. We have pointed out that the social environment is erected by man to (1) cushion himself against the rigors of nature; (2) utilize nature's gifts; (3) provide facilities for human association; (4) stimulate, train, and channel man's creativity; and (5) thus arouse and utilize man's will to raise himself to higher levels of creativity and skill in fulfilling his purposes. What results in these areas have been achieved to date through the functioning of human personality?

Personality includes the hand of the artisan, the imagination of the poet, the ingenuity of the inventor, the voice of the singer. It is through the personality that men have brought into being the philosophies, the sciences, and the arts, including the field of livelihood. The social environment in general and the economy in particular are aggregates of personality affirmations in the form of ideas, generalizations, designs, plans, formulations, sequences, experiments, adjustments, verifications, and unnumbered combinations of sights, sounds, and modifications in the shape, size, and texture of material objects. In each instance a human emotion has animated, a human mind has conceived, a human voice has uttered or recorded, and a human hand has wrought. The whole vast range of human achievement has thus been funneled through great numbers of personalities scattered over wide areas of space and distributed through ages of time. Animal domestication; agricultural practices; basketry; pottery; textilery; metallurgy; the symbology of writing, musical notes, and mathematical formulas; the conceptions of literature and philosophy are gradual accumulations, to which many personalities have added and from which others have subtracted, since destroyers as well as builders have had their day. As the hand holds the pen which writes, so the personality has provided the instrumentality through which human capacity has flowered in achievement.

Opportunity, in the first instance, means multiplying the chances and widening the areas in which individuals can choose a life of affirmation, struggle, and achievement rather than a life of ease, comfort, and parasitic irresponsibility. In the second instance, opportunity means providing stimuli which point in this direction.

The economy can play an important and decisive part in this result by providing an adequate, stable, dependable flow of goods and services, distributed in proportion to need, thus relieving individuals from the pressure of physical hardship, and assuring them a minimum subsistence. Hunger and physical hardship are at best negative forces, whereas the urge to create and achieve are positive, in the life of the individual and of the race.

3. Personality and the Human Race

Human personality is to the human race as the cell is to the body. Billions of cells aggregate in the body. Billions of personalities aggregate in the human race.

Cells are living units, specialized and grouped in nerve, muscle, and bone, in lungs, stomach, heart, and brain. Tissues and organs in their turn are co-ordinated into the body.

Personalities are living, functioning entities; specialized and grouped by races and subraces; by families, tribes, neighborhoods, villages, cities, nations; by capacities, skills, occupations; and co-ordinated into the human race.

The body, a complex organism, lives and works through the cells. The health and vigor of the body are determined by the health and vigor of the cells.

The human race, a complex organism, lives and works through personalities. The health and vigor of the race are expressed in terms of personalities. The social environment, inhabited by the race, is built, maintained, altered, replaced, and improved by personalities. Race experience comes through the functioning of

personalities. Race creativity is expressed and strengthened through the creative strivings of personalities. The health and vigor of the race are determined by the health and vigor of the personalities composing the human race.

The physical envelope of cells lives and grows as a result of the nourishment prepared in the alimentary tract and delivered by the blood stream. Cells are physically healthy and vital in proportion as the flow of nourishment is maintained at a certain level of quantity and quality. If nourishment falls below that level, the cells and the body which they compose suffer the consequences attendant upon inadequate quantity and poor quality of nourishment.

The physical envelopes of personalities live and grow as a result of the subsistence prepared through the productive processes and techniques and delivered to them by the economy. Personalities are physically healthy and vital in proportion as the nourishment is maintained at a certain level of quantity and quality. If subsistence falls below that level, the personalities and the race which they compose suffer the consequences attendant upon inadequate quantity and poor quality of sustenance.

One of the most effective testimonials in support of this argument is presented by Henry Sigerist in his *Civilization and Disease*. Henry Sigerist is a doctor of medicine. He argues that the ill health of individuals and groups results primarily from the failure of an economy to maintain the necessary quantity and quality of subsistence. The economy thus appears as a major determinant of the health and well-being. Quantity and quality of subsistence are essential ingredients in the health, vigor, and longevity of human beings.

4. Social Groups Provide Opportunity

Social groups provide the conditions under which the personality functions. Man is social. Within limits his personality reflects group life. The language we speak and write, the sciences we know, and the arts we practice come to us from the group. Today we drive automobiles. If we had lived a century earlier we would have driven buggies or oxcarts. Today we use metals, at an earlier age we would have used stone. The difference between the auto driver and the buggy driver, between metal-age men and stone-age men is not in their native capacity, but in the conditioning which they receive from the social group.

Personality is born weak, inexperienced, immature. The social group establishes the conditions, including the flow of goods and services, necessary to personality survival during its immaturity. By lengthening the period of immaturity, the social group raises the levels of maturity and enlarges the area within which the indoctrination of personality may continue. The result is a more extensive accumulation of vicarious experience and of special skills, and hence a greater capacity of the social group to perpetuate and to improve the social environment (including the economy) which plays so important a role in determining its well-being.

Despite its many shortcomings, formal education plays an important role in supervising personality maturity, giving it direction, and supplying it with purpose. As education has broadened, it has been able to offer personality a wider range of choices, and in each special field has been able to provide more intensive and extensive training.

At the same time that it supervises the processes of maturity the social group provides the personality with incentive to effort. As the range of specialization widens, the group may provide the individual with a wider choice of incentives among which individual idiosyncrasies may be matched with corresponding opportunities.

The social group provides for continuity, stability, and security in the social environment. Housed in this environment, the individual develops confidence as he undergoes the experiences and acquires the skills upon which effective living depends.

We are not arguing that the existing social environment is ideally adapted to meet the wide range of needs of a large number of divergent personalities. On the contrary, the present society leaves much to be desired in this respect. We are insisting, however, that variety in environmental stimuli is an important element in providing incentive and hence opportunity for widely divergent personalities.

In many directions the personality is conditioned by the group. In the more elementary social arts such as speaking, reading, writing, numbers, dietary patterns, clothing, housing, and methods of association the person accepts and adopts the culture traits of the community in which he is reared. Later in life he may decide to migrate into another community and he may then acquire a new set of culture traits. Barring such a shift, the personality life pattern reflects the pattern of the community in which it has matured.

The reflection is not wholy accurate, however. While each personality matures under the pressures of the group pattern, it matures in its own right and in terms of its own bundle of capacities and potentialities. A personality with normal capacities will accept the group pattern and follow it. A personality with exceptional capacities—talent or genius—may reject large areas of the group pattern and replace them through invention, discovery, organization and leadership, proscription, and destruction. Here there is an interplay between the group and the strongly affirmative personality in which both play a role in shaping the social environment. This has been particularly evident during the present age of discovery and invention. Producers of electric gadgets, of internal combustion engines have seen sweeping changes in the social environment within their own lifetimes.

Social groups, almost without exception, attempt to condition and direct the personality into the life pattern which they consider most advantageous. With few exceptions personality conduct patterns reflect more rather than less completely the results of group conditioning.

We cannot repeat too often that the social group attempts to put its imprint upon a personality in the same way that a die stamps its imprint on a piece of metal. The personality, on its part, tends to conform, although often questioningly and sometimes rebelliously, to the community pattern. This generalization applies to the techniques of production and income distribution as well as to language, manners, and other social procedures.

5. Areas of Social Conditioning

Most social conditioning is done in local groups—the family, the neighborhood, the school, the playground. These local groups are the units with which larger social aggregates are built. Success in local conditioning rests upon the age and the impressionability of the subject. Young, growing subjects are more impressionable than those which are more mature. "Just as the twig is bent, the tree's inclined." Experiences in the home, on the playground, and in the school therefore play a large role in determining the conduct pattern of later life.

Nationist propaganda has tended to obscure the importance of local activity. It has been assisted by increases in the size of economic units; by the wide ramifications of economic activities; by the extensive movement of goods, ideas, and persons following recent improvements in transportation and communication; and by the resulting network of interrelation and interdependence. Nevertheless it remains true that a large functional area, such as a national economy, operates through the local units of which it is composed.

Let us take an example. "The textile industry of the United States" is a generalization in the same sense that "the redwoods of California" is a generalization. It is a convenient way of grouping together all of the factories in the country which are engaged in a certain type of productive operations or all of the trees scattered over a certain geographical area which have the same characteristics. Despite the usefulness of such generalizations it is the individual factories which produce textiles, and the individual trees which produce redwood.

The textile mill is the unit of production, in the same sense that single bricks are the units of a building. Textile workers, textile machinery, and a supply of raw materials do not constitute the textile industry until they find expression through functioning units—textile factories.

Similarly, "the people of Massachusetts" is a generalization which takes on reality as men, woman, and children are grouped together in families, villages, and other functioning units. The human race is made up, not of individuals, but of individuals

grouped in families, tribes, and peoples. The social environment is composed of a great number and variety of local and regional environments.

Personalities carry on their lives in the local units of which the larger wholes are composed. It is the local environments which play the decisive role in impressing the life pattern upon the maturing personalities.

Attempts have been made to group local social units into tribal confederations, principalities, kingdoms, states, nations, and empires. Improved transportation and communication have increased the area that could be brought successfully under a central authority. The wider the authority and the greater the number of local units under its control, the more numerous and varied the opportunities for personalities to gain the kind of experience most useful in the exercise of their peculiar capabilities.

Local groups with which personality comes into direct contact and various combinations of groups from the local to the planetary afford means, more or less adequate, for (1) the growth and unfoldment of the individual human being; (2) the consequent evolution of humanity, (3) group survival, and (4) group improvement. If the local groups are well planned, efficiently administered, and successfully co-ordinated with other groups on the same level and on higher levels, they will be better able to meet the needs of personality and of community. Local groups, immediately, and larger groups, ultimately, justify their existence in so far as they further the unfoldment of personality, the evolution of humanity, and the survival and improvement of the human community. This holds true for occupational and consumer units as for other social groupings.

6. Equality in Opportunity

Opportunity is a combination of forces or circumstances calculated to bring about or further particular results. Thus we say that a break in the cloud bank gives people in a plane an opportunity to see the landing field, or that the arrival of a mechanic provides an opportunity for the travelers to have their car repaired. The social situations to which we referred at the end of the previous section will be minimized by restrictions upon opportunity and maximized by the enlargement of opportunity.

Opportunity is not the animating force. That is provided by human beings, individually or in groups. The human struggle to achieve and to improve is carried on inside of the range provided by opportunity and is channeled through and along the paths of action which opportunity affords.

Opportunity therefore opens the way for individuals and for social groups to function. The character of the opportunity plays a large part in determining the success or failure of individual or group effort.

There are times when status is rigid, and the opportunities to make changes in the social environment are few and far between. At other times the cake of custom is broken as invention, discovery, depression, or war, remove some of the obstacles to change. Such situations provide opportunities for making extensive alterations in the social pattern.

Providing or withholding opportunity is of consequence both to individuals and to social groups, and the control of opportunity is one of the vital aspects of social control. This becomes apparent when we ask: opportunity for what? Opportunity is not uniform in character. It is always greater in some directions than it is in others. Individuals may have opportunity to enrich themselves, to teach, to heal, or to renounce life itself for some great purpose. Similarly group opportunity may be oriented toward production, order, and peace or toward war and destruction.

Advantageous modifications in the social environment will be achieved in proportion as individuals have opportunity to associate, learn, know, and understand life and its meaning.

The personality is trained, develops skills, and learns. The consequence is a conduct pattern which is based less and less on reason and more and more on habit. Careful conditioning, resulting in action, will through repetition, produce habit. Habits, especially emotional and mental ones, when well established, tend to determine the course of conduct. In this sense habit stabilizes while opportunity provides for variation and improvement.

Personality training is largely the result of association—in the family, on the street, in the school, at work, in the neighborhood, and in one or another of the organizations to which most individuals belong. Indoctrination comes through association. So do social pressures, including severe sanctions imposed upon those who deviate from the accepted community pattern.

Individuals gain much or most of their experience through association with their fellows. The more congested and complex the community the more varied and insistent are the social pressures. Centers of population tend to restrict the area in which the personality makes its own decisions and to enlarge the area in which decisions are made under group pressure and are carried out under group direction and control. The mass man gains his experience chiefly through association, and the resulting knowledge is mass knowledge.

Under such conditions, opportunity is provided or withheld by the community. The community therefore becomes the arbiter of opportunity as well as habits and conduct patterns. This holds for the economy as well as for other aspects of community life.

Communities are therefore in a position to decide the conditions under which opportunity is provided. The economy, in conjunction with other aspects of the social environment, has tended to provide those individuals and social groups which occupy positions of leadership or authority with advantages which have been denied to those less highly placed. Those highly placed have been permitted or encouraged to share their advantages with their relatives and associates and to pass them on to their descendents, thus creating and perpetuating privileged groups, classes, or castes, and dividing the community along lines of tradition or custom, without relation to individual capacity.

7. Social Survival and Social Change

From what we have written in the preceding section it follows that every human being and every segment of society, including the economic, has a vested interest in group survival and improvement and in the patterned change without which survival is difficult or impossible.

Group survival depends upon the effectiveness with which local social units provide for individual needs and offer incentive for the increase and intensification of individual efforts directed toward personality growth and unfoldment and group survival and improvement.

Group morale stands in the forefront of the requisites for group effectiveness. The members of the group must have confidence in themselves, in their leaders, in their mode of life and in their capacity to justify it and to fulfill it. So long as this confidence is present and is supported by experience, the group can advance from one level of effectiveness to the next. When, on the other hand, defeat casts doubt upon the stability of the group life pattern, confusion, division, and disintegration will probably result.

Defeat may take one of many forms such as economic breakdown, civil strife between rival factions of the leadership or between leaders and followers, diplomatic or military defeat, corruption, inefficiency, and self-seeking, especially in the leadership, ascendancy of special privileges, and special interests over the common welfare, adherence to tradition despite the possibilities of improvement.

Nothing succeeds like success. Members of a going enterprise are carried along by the common momentum or are accommodated in the fluidity and adaptability of the group pattern. Check the onward group movement, divide it and turn it at cross purposes, question its motivation or its vision, and its capacity to command the loyalty of its constituency decreases or disappears. The maintenance of group effectiveness rests upon techniques which are as understandable as the techniques of farming or building construction. They may be summed up in two words: patterned change.

Several conceptions are included in patterned change: the alteration of the social environment, according to plans, which imply certain attitudes, are aimed at defined objectives and assume the employment of means which are in harmony with the desired ends.

Change characterizes society as well as nature. The universe, in whole and in its parts, is built of energy in motion and is altered ceaselessly according to a pattern which rejects identical duplication and requires variation and therefore modification. It is as impossible to repeat a social situation as it is to duplicate a personal experience. New elements may be found in every situation and every experience at every instant of time and at every shift of scene. Change therefore becomes the one known invariable with which the social scientist must deal.

Social environment is never the same twice, nor are two social environments ever identical. Social movement through time and across space constantly modifies the social pattern. Changes are brought about by the addition and subtraction of culture traits, by growth and decay, by production and destruction, by building up and tearing down.

Social change may be conscious or unconscious. Changes in the social environment, like changes in the seasons, take place whether man observes them or not. Ages of social evolution must have passed before even the keenest human minds noted what was going on. Awareness as to the extent and character of social movement is a recent experience which is still confined to a minority, even among the most enlightened peoples. It is only a few years since the concept of biological evolution (as opposed to creation) was being fought by scholars and ecclesiastics all over Christendom. The concept of social evolution is being fought at the present moment, with equal vigor, by the conservative forces of the Western world under the slogans: "our fathers knew best," "what was good enough for them is good enough for us," "we are fortunate inhabitants in the best of all countries in the best of worlds."

Changes in the social environment may be brought about by agreement and consent or by coercion and violence. Minor changes in the social pattern are usually made by consent. Major changes are frequently made by violence. Thus the changes in the title to city lots and farms is usually made by consent, under contracts recognized in property law. On the other hand, shifts in frontiers and titles to colonies and similar large-scale units are made most frequently as a result of military operations. Agreement and coercion are both present in most crucial social situations.

Social change may be random or it may be planned. Usually both elements enter, with random change predominating because social planning is for the most part local and occasional, and, in principle, is frowned upon by the free (random or unplanned) world. Again there are wide variations. Even the freest countries and peoples do not frown upon the "voluntary planning" represented by international shipping cartels, manufacturing and banking concerns, and the Universal Postal Union, nor do they question the advisability of household, municipal, and national budgets. They reject over-all planning because they wish to engage in profit seeking and other competitive, predatory, and exploitative activities without interference by the public authorities.

8. Patterned Change and Social Improvement

Patterned change assumes human foresight and direction. It assumes that man will not "let nature take its course," but will intervene as far as is necessary or desirable to reach the objectives toward which the social group is consciously moving.

We wrote in the previous section that patterned change implies certain attitudes, is aimed at defined objectives, and assumes the employment of means which are in harmony with the desired ends.

We propose at this point to state briefly what attitudes, ends, and means might be expected to meet the situation in which Western man finds himself.

Attitudes and outlooks should include (1) expectancy of social changes, following the recent spectacular developments of science and technology. (2) A world view which considers the planet as a unit and the human race as members of a world-wide family. (3) An understanding of nature and the nature processes, coupled with a determination to conserve nature, by using irreplaceable resources (such as minerals) sparingly, by bettering the quantity and quality of replaceable resources (such as topsoil and forests), and by handing on to the rising generation a nature storehouse which, on the whole, is better supplied than the one inherited from the preceding generation. (4) Reverence for life and respect for the single personality and the local community. (5) Economy in all things. Using what is necessary, but sparingly, rather than lavishly, and never wasting or destroying the gifts of nature or the products of labor. (6) Seeking to establish and maintain a balance between efficiency on one hand and fair dealing on the other.

Individuals and communities, having such attitudes and outlooks, should formulate the objectives toward which they propose to move.

Toward what objectives should man, individually and collectively, strive? (1) The evolution and perfection of mankind in the first instance, and of all other forms of life with which man comes into contact. (2) The establishment of just relationships between man and man, between man and the social group, between various human groups, and between humans and fellow beings. (3) The maintenance of a social equilibrium which will prevent disruption and overturn and will assure a high measure of stability and security. (4) The promotion of social order, which means that tensions, controversies, and conflicts involving individuals and social groups will be dealt with by means of recognized, orderly processes, rather than by an appeal to armed force. This means the end of civil as well as of international war. (5) Equality of opportunity. A social environment which will guarantee to every child born into the world the same chance to develop his capacities and capabilities. Such an objective would presuppose the end of privilege in every form, economic and social. (6) The conscious improvement of society by society. The encouragement of imagination, initiative, experimentation, and creative expression in individuals and local groups. (7) The use of their inventions, discoveries, and achievements to modify the social environment for the advantage of the entire human race.

How are these objectives to be achieved in an interdependent global community of 2,400 million human beings? The answer is obvious. The human family must find means which point in the direction of these ends, and which, if wisely and consistently employed, will lead toward the desired objectives. We shall list several means which are closely related to the problems of livelihood.

1. The social ownership and operation of all activities which are essentially social in character. We discussed this point at length in the chapter on ownership. Each community at every level must plan and direct the activities upon which its survival depends.

2. Collective action for group advantage will be effective in so far as it subordinates the competitive struggle for pelf, position, and power to techniques of co-operation and mutual aid. Individuals and local groups learn co-operation as they learn any other art—through indoctrination and through directed experience. Competition stimulates, disorganizes, disrupts, and in the end destroys those individuals and communities which give it full scope. Collective action, on the other hand, stabilizes and regularizes community life.

3. The basic units of community life must be neighborhoods in which human relations predominate, so that neighborliness and not wealth accumulation will occupy the uppermost place in community life. The size and form of the basic community will be determined by answering the question: How many people (and with what occupational qualifications) will be able to enjoy rewarding lives on this square mile (or other unit) of territory? By this means human well-being will have priority over wealth accumulation and the search for prestige and power. Basic units of community life are the building blocks of which larger social areas such as regions, nations, peoples, and the world community are composed.

4. Local specialized communities, like specialized individuals, are brought together to form larger social units either by force or by consent. If the co-ordination is based on consent it will be more stable than that resulting from violence. If it is to be stable, each unit in the social structure must enjoy the largest degree of autonomy consistent with the effective operation of the entire enterprise. To achieve such a result, each locality must be sovereign in matters which lie wholly within its own borders. Matters of concern to two or more localities must be the concern of the next higher authority—say, the region, and so on from locality to world community.

5. Indoctrination and liberation sound like a pair of opposites. Both are essential to a balanced social life. Through indoctrination one generation of mankind passes on to the next the best that it knows about the science and art of living. At the same time the older generation arouses the younger to evaluate, experiment, improve. Indoctrination stablizes. Liberation dynamizes.

6. For both the individual and the community it is important to preserve a close relation between principle and practice. It is confusing and stultifying to say one thing and do something quite different. Plans should be so drawn that they can be fulfilled, and fulfillment should follow planning.

7. Sound attitudes, wisely chosen objects, and appropriate means effectively employed should provide a stable, secure, social environment, changing under the pressure of necessity, but according to plan. Within this dynamic environment the individual human being and the local community should learn a self-mastery which will make them capable of self-direction, with one eye on the well-being of the larger community, while the other keeps watch over their own interests. Multiple loyalties will lead to confusion and conflict unless they are subject to understanding and self-mastery.

A world community dedicated to the achievement of such objectives and employing such means should be able to survive and to stabilize the entire social environment, including its economy. The alternative is the familiar cycle of civilization—the competitive struggle for wealth and power, expansion, conquest, exploitation, colonial wars, wars of imperial rivalry, civil war, militarism, and self-destruction.

Patterned change describes a program extending from a theoretical approach involving certain principles, assumptions, attitudes, and outlooks to the formulation of strategic objectives and the adoption of action patterns designed to reach those objectives. Taken together it comprises the science and art of social engineering.

Men have developed bodies of theory and practice in biology, in hydraulics, in metallurgy, in building construction, in pictorial art, in music, and in other fields. It has remained for modern man to integrate all of them into a unified social theory and practice under which each body of science and technology has its place, in orderly relation with all of the others. Social engineering is still in an early phase of its development. As it matures, it offers humanity a technique for handling the entire social environment which should prove as dependable as forestry, building construction, or the composition and presentation of music.

Social groups face three major tasks: (1) survival, (2) continuity, (3) improvement. They exist for one major purpose—to provide freedom and opportunity for the maturing, growth, unfoldment, and evolution of the individual and the human race.

Opportunity takes two chief forms. The first, subsistence, is provided by the economy. The second, association, is provided by the community. A dependable supply of goods and services banishes the fear of privation and assures the stability and security which are so necessary to provide the individual with a foundation for creative activity. Association provides social recognition and approbation, which are so essential a factor in stimulating the individual to creative effort.

Subsistence liberates the individual from the bread struggle. Association enables him to learn, question, observe, investigate, check, generalize, and apply his knowledge to the problems of life.

$3.00

ECONOMICS
FOR THE
POWER AGE

A STATEMENT OF FIRST PRINCIPLES

by Scott Nearing

For half a century, ever since he read John Ruskin's *Unto This Last*, Scott Nearing has been planning this book. He has been a student of and writer on economics since 1898. When he came upon Ruskin's work, written about 1860 by a man who was artist and essayist rather than economist, he felt—and still feels—that Ruskin came nearer than anyone else to presenting the essentials of economics.

Now Scott Nearing writes of the application of these "first principles" to the modern Power Age, with its vista of potential abundance.

"Academic economists will be dissatisfied with this book because it contains no sections on utility, value, money, rent, interest, or profits. Marxians will be displeased because it lays no emphasis on the labor theory of value. This is as it should be. Academic economists and Marxians, in the United States, talk and write as though the steam engine were still the chief source of mechanical power and as though we still lived in an economy of scarcity, whereas present-day technology

(continued on back flap)

(continued from front flap)

considers the steam engine almost as antiquated as the treadmill. Standard works on economics ignore the fact that mass production has ushered mankind into a new era."

THE FOLLOWING ARE HIS "FIRST PRINCIPLES":

1. Individual and social life are conditioned by subsistence.
2. All subsistence originates with nature.
3. Western man utilizes nature by means of science and technology.
4. Subsistence is the result of productive effort and, increasingly, of group effort.
5. Subsistence should be apportioned according to need.
6. The less overhead, the better.
7. The economy should be owned by those who use it.
8. The economy should provide a stable, secure subsistence.
9. The economy must assure justice and provide incentive that will lead the individual and the social group to assume and carry a full share of responsibility for the production and apportionment of livelihood.
10. The economy should provide opportunity for the growth and development of successive human generations.

THE JOHN DAY COMPANY
NEW YORK

PRINTED IN U.S.A.